

Section 19

Power

This section presents statistics on the supply, production, and distribution of power and energy. The principal sources of these data are the Federal Power Commission and the American Gas Association.

The Federal Power Commission publishes various statistical reports containing information on the electric power and natural gas industries. At periodic intervals it issues publications containing information on the production of electricity, capacity of generating plants (industrial plants as well as utilities), fuels used in production, financial data, sales of electric energy, construction costs and production expenses of steam electric and hydroelectric plants, financial and operating statistics on both the electric and interstate gas pipeline utilities, hydroelectric power resources of the United States, sales by producers of natural gas to interstate gas pipeline companies, and depreciation practices of electric and interstate gas pipeline utilities.

The Commission also issues periodic reports on electric utility rates, including the national electric rate book, typical electric bills, and annual bills for all-electric homes. Maps showing principal natural gas pipelines and principal electric facilities in the United States are published from time to time. Other publications relate to the statutes and regulations administered by the Commission.

The American Gas Association, in its monthly and quarterly bulletins and its yearbook, *Gas Facts*, presents data on natural gas utilization and on production of gas from coal, oil, and similar products. Other important sources include the Bureau of Mines' *Minerals Yearbook*, containing data on coal, oil, and natural gas production and utilization; and the Edison Electric Institute's monthly and annual *Statistical Bulletin*, containing data on the distribution of electric energy by public utilities.

Alaska and Hawaii.—Statements specifying inclusion or exclusion of figures for Alaska and Hawaii appear in the headnotes to each table unless the inclusion or exclusion is self-evident.

Historical statistics.—Tabular headnotes provide cross-references, where applicable, to *Historical Statistics of the United States, Colonial Times to 1957*. See preface.

No. 723. TOTAL HORSEPOWER OF ALL PRIME MOVERS: 1940 to 1963

[In thousands. As of January, except as noted. Beginning 1960, includes Alaska and Hawaii, except as noted. Prime movers are mechanical engines and turbines, and work animals, which originally convert fuels or force (as wind or falling water) into work and power. Electric motors, which are secondary movers and obtain their power from prime movers, are excluded to avoid duplication. See also *Historical Statistics, Colonial Times to 1957*, series S I-14.]

ITEM	1940	1950	1955	1960	1962	1963 (prel.)
Total horsepower	2,758,332	4,760,262	7,157,077	10,972,625	12,586,417	13,404,159
Work animals	12,510	7,040	4,141	2,790	2,600	2,500
Automotive ^{1,2}	2,745,822	4,753,222	7,152,936	10,969,835	12,583,817	13,401,650
Nonautomotive	2,511,312	4,403,617	6,632,121	10,366,880	11,930,000	12,713,712
Factories	234,510	349,605	520,815	602,955	653,817	687,938
Mines	21,768	32,921	35,579	42,000	44,600	45,832
Railroads	7,332	9,167	30,768	34,700	36,300	37,000
Merchant ships, powered ³	92,361	110,969	60,304	46,856	46,694	46,390
Sailing vessels ³	0,408	23,423	24,155	23,890	22,867	23,242
Farms ⁴	26	11	5	2	2	2
Windmills	42,488	63,090	206,590	201,756	204,740	209,592
Electric central stations ²	53,542	87,965	137,576	217,173	249,059	273,085
Aircraft ^{5,6}	7,455	22,000	25,779	36,534	49,516	52,758

¹ Includes passenger cars, trucks, buses, and motorcycles. ² As of July 1. ³ Includes Alaska and Hawaii.

⁴ Excludes horses and other work animals, which are included with "work animals."

⁵ Includes private planes and commercial airliners.

⁶ Source: For 1940-1950, The Twentieth Century Fund, J. F. Dewhurst and Associates, *America's Needs and Resources, A New Survey*; for 1955, John A. Waring, *Transactions of Canadian Sectional Meeting, World Power Conference, 1958*; and beginning 1960, estimates by John A. Waring.

No. 724. MINERAL FUELS AND WATER POWER—PRODUCTION AND CONSUMPTION, BY SOURCE: 1930 TO 1963

[In trillions of British thermal units. Beginning 1959, includes Alaska, and 1960, Hawaii. Data for bituminous coal include Alaska for all years. Unit heat values employed are: Anthracite, 12,700 B.t.u. per pound; bituminous coal and lignite, 13,100 B.t.u. per pound; petroleum, 5,800,000 B.t.u. per barrel; natural gas, total production multiplied by 1,075 B.t.u., minus repressuring vent and waste gas multiplied by 1,035. Water power includes installations owned by manufacturing plants and mines, as well as Government and privately owned public utilities. Fuel equivalent of water power calculated from kilowatt-hours of power produced wherever available, as is true of all public utility plants since 1919. Otherwise, fuel equivalent calculated from reported horsepower of installed water wheels, assuming capacity factor of 20 percent for factories and mines. See also *Historical Statistics, Colonial Times to 1957*, series M 71-87]

YEAR	Total	COAL			Natural gas ²	Water power	PERCENT					
		Coal		Crude petro- leum ¹			Coal		Crude petro- leum ¹	Natural gas ²		
		Anthra- cite	Bitu- minous and lignite				Anthra- cite	Bitu- minous and lignite				
PRODUCTION												
1930	22,119	1,762	12,249	5,208	2,148	762	8.0	55.4	23.5	9.7	3.4	
1940	25,088	1,308	12,072	7,849	2,979	880	5.2	48.1	31.3	11.9	3.5	
1950	34,510	1,120	13,527	11,449	6,841	1,573	3.2	39.2	33.2	19.8	4.6	
1955	38,900	665	12,174	14,410	10,204	1,447	1.7	31.3	37.1	26.2	3.7	
1958	39,132	538	10,754	14,204	11,943	1,693	1.4	27.5	36.3	30.5	4.8	
1959	40,932	524	10,795	14,932	13,036	1,645	1.3	26.4	36.5	31.8	4.0	
1960	41,844	478	10,885	14,935	13,822	1,723	1.2	26.0	35.7	33.0	4.1	
1961	42,295	443	10,558	15,206	14,330	1,752	1.1	25.0	35.9	33.9	4.1	
1962	43,926	429	11,034	15,522	15,004	1,987	1.0	25.1	35.3	34.2	4.4	
1963 (prel.)	45,889	490	11,842	15,966	15,690	1,901	1.1	25.8	34.8	34.2	4.1	
CONSUMPTION												
1930	22,288	1,718	11,921	5,652	2,212	785	7.7	53.5	25.4	9.9	3.5	
1940	23,908	1,245	11,290	7,487	2,989	917	5.2	47.2	31.4	12.4	3.8	
1950	34,153	1,013	11,900	12,706	6,933	1,601	3.0	34.8	37.2	20.3	4.7	
1955	39,956	399	11,104	16,328	10,428	1,497	1.5	27.8	40.8	26.1	3.8	
1958	41,493	483	9,607	17,428	12,235	1,740	1.2	28.1	42.0	29.5	4.2	
1959	43,411	478	9,596	18,307	13,339	1,691	1.1	22.1	42.2	30.7	3.9	
1960	44,960	447	9,967	18,008	14,163	1,775	1.0	22.2	41.4	31.5	3.9	
1961	45,705	404	9,809	18,989	14,726	1,777	0.9	21.5	41.5	32.2	3.9	
1962	47,854	363	10,160	19,662	15,726	1,943	0.8	21.2	41.1	32.8	4.1	
1963 (prel.)	49,624	386	10,723	20,262	16,343	1,910	0.8	21.6	40.9	32.9	3.8	

¹ Includes commingled condensate. Beginning 1950, consumption includes petroleum products (net imports).

² Marketed production; includes amount stored and lost in transmission. Consumption includes dry and liquid gas.

Source: Dept. of the Interior, Bureau of Mines; *Minerals Yearbook*. Current data in *Mineral Industry Surveys*.

No. 725. ELECTRIC UTILITIES—SUPPLY SYSTEMS, UTILITIES, AND GENERATING PLANTS, BY CLASS OF OWNERSHIP: 1945 TO 1962

[As of December 31. Excludes Alaska and Hawaii. Duplications of establishments operating in two or more States have been eliminated. Each type of prime mover in combination generating plants counted separately; nonutility generating plants producing primarily for industrial use are excluded]

ITEM	Total, all classes	Pri- vately owned	Cooper- atively owned	PUBLICLY OWNED			
				Total	Munic- ipal	Fed- eral	Other ¹
1945: Total electric supply systems	4,051	1,060	800	2,191	2,002	74	25
Utilities with generating plants	1,594	492	83	1,019	990	18	11
Number of generating plants	3,836	2,400	142	1,344	1,157	86	101
1950: Total electric supply systems	4,007	821	963	2,223	2,077	55	91
Utilities with generating plants	1,495	393	92	1,010	955	13	42
Number of generating plants	3,867	2,334	166	1,367	1,136	83	148
1955: Total electric supply systems	3,648	581	950	2,117	1,968	57	92
Utilities with generating plants	1,315	315	78	922	865	9	48
Number of generating plants	3,587	2,103	146	1,338	1,068	120	141
1960: Total electric supply systems	3,637	496	965	2,176	2,026	43	107
Utilities with generating plants	1,198	270	68	860	802	6	52
Number of generating plants	3,435	2,000	132	1,303	1,017	142	144
1962: Total electric supply systems	3,583	446	969	2,168	2,014	44	110
Utilities with generating plants	1,185	260	71	854	800	8	46
Number of generating plants	3,373	1,930	146	1,297	1,027	146	124

¹ Public utility districts and State projects. ² Operating agencies.

Source: Federal Power Commission; annual summaries.

Electric Energy

529

No. 726. UTILITY ELECTRIC ENERGY USE, 1960 AND 1961, AND PROJECTED REQUIREMENTS, 1965 TO 1980

[Includes Alaska and Hawaii. Excludes generation by industrial facilities and railways having generating facilities of their own]

YEAR	ENERGY USE			PEAK LOAD		
	Billion kw.-hr.	Percent increase		Million kw.	Percent increase	
		From 1960	For each interval		From 1960	For each interval
1960	763.5			138.5		
1961	799.7	4.7	4.7	145.0	4.7	4.7
1965	1,065.5	39.6	33.2	194.4	40.4	34.1
1970	1,488.6	95.0	39.7	271.1	95.7	39.5
1975	2,030.6	166.0	36.4	371.8	168.5	37.1
1980	2,701.7	253.9	33.0	495.0	257.4	33.1

Source: Federal Power Commission; Releases No. 11,829, Jan. 30, 1962, and No. 12,778, July 8, 1963.

No. 727. ELECTRIC ENERGY PRODUCTION AND INSTALLED GENERATING CAPACITY, BY CLASS OF OWNERSHIP AND TYPE OF PRIME MOVER: 1940 TO 1963

[Production for years ending December 31; other data as of December 31. Excludes Alaska and Hawaii. See also *Historical Statistics, Colonial Times to 1957*, series S 15-35 and S 44-69]

ITEM	1940	1945	1950	1955	1960	1961	1962	1963 (prel.)
Production (1,000,000 kw.-hr.)								
Industrial plants ¹	179,907	271,255	388,674	629,010	841,616	878,711	943,482	1,007,897
Electric utilities (for public use)	38,070	48,769	59,538	81,972	88,266	86,673	91,168	93,890
By class of ownership:	141,837	222,486	329,141	547,038	753,350	792,039	852,314	914,006
Privately owned	125,411	180,926	266,860	420,869	578,600	604,883	651,016	699,050
Percent of utility production	88.4	81.3	81.1	76.9	76.8	76.4	76.4	76.5
Publicly owned	10,426	41,560	62,281	126,169	174,750	187,156	201,298	214,956
Municipal	6,188	9,624	15,244	25,852	36,924	38,753	41,687	n.a.
Federal	8,554	28,001	40,388	89,064	112,321	112,177	115,776	n.a.
Cooperatives, power districts,								
State projects	1,175	3,146	5,793	11,253	25,505	36,226	43,834	n.a.
Noncentral stations	479	790	857	(3)	(2)	(2)	(2)	(2)
By source of energy (percent):								
Coal ²	54.6	51.7	47.1	55.1	53.6	53.5	53.1	54.4
Oil	4.4	3.5	10.3	6.8	6.1	5.9	5.5	5.5
Gas	7.7	8.9	13.5	17.4	21.0	21.4	21.6	22.0
Hydro	38.4	35.9	29.2	20.7	19.3	19.2	19.7	18.1
Installed capacity (1,000 kw.)								
Industrial plants ¹	50,962	62,868	82,850	130,896	185,815	198,417	208,741	227,662
Electric utilities (for public use)	11,035	12,757	13,931	16,424	17,813	17,750	17,674	18,106
By class of ownership:	39,927	50,111	68,919	114,472	168,002	180,668	191,067	209,556
Privately owned	34,399	40,307	55,176	86,887	128,450	136,749	144,577	157,830
Percent of utility capacity	86.2	80.4	80.1	75.9	76.5	75.7	75.7	75.3
Publicly owned	5,528	9,804	13,743	27,585	39,552	43,919	46,490	51,726
Municipal	2,977	3,586	4,970	7,795	11,499	12,205	12,929	n.a.
Federal	1,944	5,081	6,921	16,962	22,350	23,257	24,315	n.a.
Cooperatives, power districts,								
State projects	435	891	1,538	2,828	5,703	8,457	9,247	n.a.
Noncentral stations	173	245	314	(3)	(2)	(2)	(2)	(2)
TYPE OF PRIME MOVER								
Electric utilities (for public use):								
Number of plants, total ⁴	3,918	3,886	3,867	3,587	3,435	3,413	3,373	n.a.
Hydro	1,474	1,505	1,458	1,381	1,331	1,319	1,288	n.a.
Steam	1,153	1,057	1,051	1,045	1,060	1,050	1,056	n.a.
Internal combustion	1,201	1,324	1,358	1,161	1,044	1,044	1,029	n.a.
Production (1,000,000 kw.-hr.)	141,837	222,486	329,141	547,038	753,350	792,039	852,314	914,006
Hydro	47,321	70,970	95,938	112,975	145,516	151,850	168,283	165,459
Steam	93,002	140,435	229,543	430,119	603,342	635,564	679,226	748,548
Internal combustion	1,514	2,081	3,660	3,944	4,492	4,625	4,806	
Installed capacity (1,000 kw.)	39,927	50,111	68,919	114,472	168,002	180,668	191,067	209,556
Hydro	11,224	14,912	17,675	25,004	32,367	35,481	37,342	40,159
Steam	27,775	34,113	49,338	87,112	132,818	142,226	150,677	166,216
Internal combustion	928	1,087	1,911	2,355	2,817	2,961	3,049	3,181
Production per kilowatt of installed capacity, utilities only (kw.-hr.) ⁵	3,552	4,440	4,776	4,779	4,484	4,384	4,461	4,362

n.a. Not available.

¹ Comprises production and capacity of industrial electric powerplants of 100 kilowatts and over, including amounts for stationary electric power plants of railroads and railways.

² Distributed to other publicly owned classes.

³ Includes small percentage from wood and waste and also, in past few years, from nuclear fuel.

⁴ Each prime mover type in combination plants counted separately. ⁵ Capacity in service at end of year.

Source: Federal Power Commission; annual summaries, industrial electric power summaries, related monthly reports, and unpublished data.

No. 728. ELECTRIC UTILITIES—INSTALLED GENERATING CAPACITY AND ELECTRIC ENERGY PRODUCTION, BY STATES: 1950 TO 1962

[Installed capacity as of December 31; production for years ending December 31]

STATE	INSTALLED CAPACITY (1,000 kw.)				ENERGY PRODUCTION (1,000,000 kw.-hr.)			
	1950	1955	1960	1962	1950	1955	1960	1962
	68,919	114,472	168,568	191,744	329,141	547,038	755,375	854,773
United States¹								
New England	4,052	5,271	7,045	7,435	16,211	22,610	28,808	32,043
Maine	415	623	743	750	2,405	2,966	3,172	3,172
New Hampshire	398	474	762	731	1,329	1,718	2,188	2,695
Vermont	204	261	261	280	735	981	842	770
Massachusetts	1,053	2,167	2,971	3,249	6,588	9,461	13,309	14,879
Rhode Island	359	401	427	424	1,656	1,955	1,699	1,544
Connecticut	1,022	1,345	1,880	2,001	4,223	6,091	7,804	8,983
Middle Atlantic	13,225	18,218	25,536	29,994	63,372	86,140	112,749	130,139
New York	6,257	8,469	11,821	14,942	29,452	39,533	51,897	62,187
New Jersey	2,053	2,914	4,538	5,358	9,921	12,306	17,730	20,424
Pennsylvania	4,916	6,835	9,178	9,694	24,000	34,301	43,122	47,528
East North Central	16,083	25,976	36,780	40,369	75,349	125,853	165,101	179,833
Ohio	4,430	7,459	10,612	11,506	21,967	35,955	49,489	51,454
Indiana	2,142	4,351	6,506	7,201	10,374	21,193	30,966	34,648
Illinois	4,506	6,955	9,354	9,891	20,686	35,907	43,085	46,290
Michigan	3,222	4,590	6,758	7,785	15,316	22,365	27,672	32,075
Wisconsin	1,783	2,022	3,490	3,925	7,006	10,343	13,888	15,366
West North Central	5,024	7,930	11,538	13,288	19,237	30,463	43,734	51,700
Minnesota	1,151	1,764	2,434	2,640	4,549	6,642	9,613	11,146
Iowa	1,173	1,554	2,011	2,253	4,428	6,212	7,927	9,059
Missouri	958	1,743	2,697	3,196	3,718	6,952	10,552	13,403
North Dakota	187	264	666	685	660	963	1,780	2,114
South Dakota	169	491	545	919	536	1,399	1,760	2,175
Nebraska	572	762	1,224	1,345	2,011	2,816	4,351	4,779
Kansas	814	1,353	1,960	2,368	3,355	5,478	7,810	9,024
South Atlantic	8,857	15,131	22,696	26,197	43,604	71,220	103,636	119,994
Delaware	28	224	425	538	20	1,366	2,262	2,563
Maryland	1,099	1,373	2,077	2,507	5,040	5,845	9,240	10,943
District of Columbia	508	533	533	537	1,669	1,827	976	711
Virginia	1,204	1,931	3,570	4,267	6,233	9,380	18,285	21,536
West Virginia	1,256	2,177	3,217	3,149	7,821	14,239	14,013	17,098
North Carolina	1,760	3,503	4,397	5,354	9,829	15,592	20,000	23,645
South Carolina	847	1,652	2,249	2,441	2,910	5,870	10,238	11,051
Georgia	1,156	1,675	2,236	2,538	5,235	7,705	10,655	10,028
Florida	999	2,062	3,992	4,867	4,847	9,593	17,987	22,420
East South Central	4,464	11,657	16,614	18,254	24,606	66,530	87,691	94,898
Kentucky	904	2,745	3,382	3,463	4,390	17,693	19,899	20,648
Tennessee	1,670	4,628	7,521	7,484	9,379	24,625	40,071	38,556
Alabama	1,690	3,654	4,700	6,154	9,577	21,348	24,594	32,284
Mississippi	200	631	1,032	1,153	1,280	2,864	3,127	3,410
West South Central	4,717	9,449	16,401	19,252	22,515	40,823	64,608	76,921
Arkansas	450	1,165	1,188	1,596	1,976	4,909	5,244	5,599
Louisiana	909	1,594	2,934	3,501	4,936	6,677	11,805	13,575
Oklahoma	723	1,260	2,225	2,406	2,927	5,337	8,299	9,866
Texas	2,636	5,430	10,054	11,750	12,676	23,900	39,200	47,550
Mountain	3,445	6,106	8,700	9,815	16,497	24,155	36,611	40,526
Montana	442	925	1,353	1,377	3,136	4,696	5,992	7,051
Idaho	445	781	1,255	1,255	2,638	3,907	6,165	5,982
Wyoming	139	236	382	527	595	724	1,588	2,288
Colorado	404	950	1,317	1,534	1,856	3,719	5,571	6,084
New Mexico	281	450	802	956	1,914	1,765	3,041	3,426
Arizona	843	1,026	2,266	2,641	3,489	5,535	8,562	9,898
Utah	235	523	606	611	659	2,377	3,088	2,760
Nevada	596	597	720	915	3,210	1,431	2,655	3,041
Pacific¹	9,054	14,733	23,256	27,140	47,751	79,245	112,437	128,720
Washington	2,765	4,074	7,215	8,356	17,371	24,030	34,153	39,365
Oregon	973	2,046	2,614	2,830	5,545	12,703	12,425	13,270
California	5,316	8,612	12,862	15,277	24,836	42,512	63,834	73,626
Alaska	n.a.	n.a.	117	160	n.a.	n.a.	359	423
Hawaii	n.a.	n.a.	449	517	n.a.	n.a.	1,666	2,036

¹ Beginning 1960, includes Alaska and Hawaii.

Source: Federal Power Commission; annual summaries and related monthly reports.

Installed Generating Capacity

531

No. 729. INSTALLED GENERATING CAPACITY OF ELECTRIC UTILITIES AND INDUSTRIAL PLANTS, BY TYPE OF PRIME MOVER AND CLASS OF OWNERSHIP—STATES: 1962

[In thousands of kilowatts. As of December 31]

STATE	Total	TYPE OF PRIME MOVER				CLASS OF OWNERSHIP OF ELECTRIC UTILITIES			Industrial plants	
		Electric utilities and industrial		Electric utilities		Total	Privately owned	Publicly owned		
		Fuel	Hydro	Fuel	Hydro			Municipal		
United States	209,555	171,395	38,161	154,326	37,418	191,744	145,107	12,991	33,646	17,811
New England	8,584	7,069	1,515	6,183	1,252	7,435	7,172	225	38	1,149
Maine	1,108	614	494	401	348	750	729	4	17	358
New Hampshire	818	375	443	335	397	731	728	4	-----	86
Vermont	302	103	199	93	186	280	284	16	-----	22
Massachusetts	3,722	3,495	228	3,064	185	3,249	3,088	152	9	473
Rhode Island	450	447	3	422	2	424	418	2	5	26
Connecticut	2,185	2,037	149	1,868	133	2,001	1,945	49	8	184
Middle Atlantic	32,135	27,656	4,479	25,587	4,407	29,994	26,616	246	3,133	2,141
New York	15,464	11,429	4,035	10,978	3,968	14,942	11,720	99	3,123	522
New Jersey	5,683	5,674	8	5,352	6	5,358	5,297	59	2	324
Pennsylvania	10,988	10,553	436	9,261	433	9,694	9,599	88	8	1,294
East North Central	44,648	43,737	911	39,554	815	40,369	37,804	2,119	446	4,279
Ohio	12,817	12,813	3	11,566	-----	11,566	10,983	570	14	1,250
Indiana	7,999	7,970	30	7,172	30	7,201	6,869	332	-----	798
Illinois	10,541	10,499	41	9,853	39	9,891	9,514	332	45	649
Michigan	8,976	8,565	411	7,414	371	7,785	6,946	729	109	1,191
Wisconsin	4,316	3,889	426	3,549	376	3,925	3,401	157	277	391
West North Central	14,001	11,970	2,031	11,298	1,989	13,288	8,289	2,155	2,843	713
Minnesota	2,906	2,722	183	2,390	150	2,540	2,087	405	97	366
Iowa	2,381	2,243	139	2,115	138	2,253	1,744	343	167	128
Missouri	3,311	2,918	393	2,804	393	3,196	2,425	441	331	115
North Dakota	679	279	400	265	400	665	182	17	467	14
South Dakota	929	257	671	256	663	919	215	41	663	10
Nebraska	1,351	1,112	239	1,106	239	1,345	-----	286	1,058	7
Kansas	2,443	2,437	6	2,363	6	2,368	1,686	622	60	75
South Atlantic	29,255	25,157	4,099	22,277	3,919	26,197	23,056	1,428	1,713	3,058
Delaware	577	577	538	538	538	538	485	58	-----	39
Maryland	2,746	2,474	272	2,236	271	2,507	2,440	60	7	239
Dist. of Columbia	549	546	3	534	3	537	534	-----	3	13
Virginia	4,717	4,302	416	3,871	396	4,267	3,978	57	232	451
West Virginia	4,137	3,930	208	3,048	101	3,149	3,149	-----	-----	980
North Carolina	5,608	4,320	1,288	4,079	1,275	5,354	4,877	118	361	254
South Carolina	2,888	1,930	958	1,509	932	2,441	1,890	5	546	447
Georgia	2,852	1,940	912	1,639	899	2,538	2,030	16	492	314
Florida	5,180	5,138	42	4,826	42	4,867	3,672	1,122	74	313
East South Central	19,204	15,003	4,201	14,061	4,193	18,254	5,794	976	11,483	950
Kentucky	3,498	2,957	541	2,922	541	3,463	1,404	83	1,976	38
Tennessee	7,921	6,000	1,921	5,563	1,921	7,484	172	798	6,515	437
Alabama	6,532	4,794	1,739	4,423	1,731	6,154	3,161	(2)	2,992	378
Mississippi	1,252	1,252	1	1,183	1	1,183	1,058	95	-----	99
West South Central	23,070	22,036	1,034	18,219	1,034	19,252	16,097	1,902	1,253	3,817
Arkansas	1,889	1,411	478	1,118	478	1,596	1,101	83	412	293
Louisiana	4,665	4,665	3	3,501	-----	3,501	3,125	376	-----	1,164
Oklahoma	2,455	2,290	165	2,241	165	2,406	1,970	145	291	49
Texas	14,061	13,671	390	11,360	390	11,750	9,901	1,298	550	2,311
Mountain	10,621	5,840	4,781	5,037	4,779	9,815	5,977	360	3,479	805
Montana	1,393	131	1,262	115	1,262	1,377	877	-----	500	16
Idaho	1,294	43	1,261	4	1,250	1,255	1,033	13	209	39
Wyoming	552	339	212	314	212	527	306	2	219	25
Colorado	1,631	1,365	266	1,268	266	1,534	1,060	208	265	97
New Mexico	1,053	1,028	25	931	25	956	767	75	111	97
Arizona	2,876	1,895	980	1,661	980	2,641	1,162	2	1,477	234
Utah	860	768	102	509	101	611	537	55	19	249
Nevada	962	279	683	233	682	915	235	1	679	47
Pacific	28,039	12,928	15,110	12,110	15,030	27,140	14,303	3,580	9,258	898
Washington	8,681	541	8,140	243	8,113	8,356	1,093	1,000	6,263	325
Oregon	3,009	355	2,654	197	2,633	2,830	979	53	1,797	179
California	15,535	11,325	4,210	11,070	4,208	15,277	11,701	2,464	1,112	257
Alaska	221	132	89	87	73	160	13	62	85	61
Hawaii	593	575	18	514	3	617	517	-----	-----	76

¹ Includes cooperatives. ² Less than 500 kw.

No. 730. ELECTRIC ENERGY—PRODUCTION BY ELECTRIC UTILITIES AND INDUSTRIAL PLANTS, BY TYPE OF PRIME MOVER AND CLASS OF OWNERSHIP, BY STATES: 1962

[In millions of kilowatt-hours. For year ending December 31]

STATE	Total	TYPE OF PRIME MOVER				CLASS OF OWNERSHIP OF ELECTRIC UTILITIES			Indus- trial plants	
		Electric utilities and industrial		Electric utilities		Total	Pri- vately owned	Publicly owned		
		Fuel	Hydro	Fuel	Hydro			Muni- cipal	Other ¹	
United States	946,482	774,450	172,033	686,214	168,560	854,773	653,070	41,831	159,872	91,709
New England	35,914	30,144	5,770	27,517	4,526	32,043	31,268	644	131	3,871
Maine	5,021	2,492	2,529	1,461	1,711	3,172	3,112	17	42	1,849
New Hampshire	3,081	1,725	1,356	1,549	1,146	2,695	2,083	12	-----	386
Vermont	845	45	800	33	737	770	718	52	-----	75
Massachusetts	15,870	15,085	784	14,206	673	14,879	14,389	463	27	991
Rhode Island	1,628	1,623	5	1,530	5	1,544	1,502	3	39	84
Connecticut	9,470	9,174	295	8,729	254	8,988	8,864	96	23	437
Middle Atlantic	139,283	116,846	22,437	108,021	22,118	130,139	112,161	736	17,242	9,145
New York	64,528	43,632	20,896	41,589	20,598	62,187	44,667	315	17,215	2,341
New Jersey	21,655	21,635	23	20,409	15	20,424	20,256	162	6	1,234
Pennsylvania	53,097	51,578	1,519	46,024	1,504	47,528	47,248	258	22	5,570
East North Central	199,816	195,702	4,114	176,179	3,654	179,833	172,171	5,795	1,367	19,983
Ohio	57,353	57,336	17	51,449	5	51,454	49,814	1,577	63	5,899
Indiana	38,456	38,381	75	34,572	75	34,648	33,762	886	-----	3,809
Illinois	49,194	49,005	189	46,120	170	46,290	45,255	916	119	2,904
Michigan	37,645	35,046	1,699	36,501	1,574	32,075	29,502	2,042	631	5,570
Wisconsin	17,167	15,033	2,134	13,537	1,829	15,366	13,837	375	1,155	1,801
West North Central	55,440	48,871	6,569	45,355	6,365	51,700	37,268	4,902	9,529	3,740
Minnesota	13,136	12,165	971	10,355	791	11,146	10,030	827	289	1,990
Iowa	9,732	8,801	931	8,129	930	9,059	7,780	715	564	673
Missouri	13,951	13,070	881	12,522	881	13,403	11,176	1,038	1,189	548
North Dakota	2,178	885	1,293	821	1,293	2,114	510	11	1,592	64
South Dakota	2,199	697	1,502	695	1,480	2,175	685	16	1,474	24
Nebraska	4,791	3,815	975	3,804	975	4,779	-----	581	4,198	12
Kansas	9,452	9,437	15	9,009	15	9,024	7,088	1,718	223	428
South Atlantic	137,514	122,601	14,823	106,055	13,939	119,994	110,353	4,482	5,158	17,520
Delaware	2,757	2,757	-----	2,563	-----	2,563	2,498	70	-----	104
Maryland	12,460	11,312	1,148	9,796	1,147	10,943	10,791	126	27	1,517
Dist. of Columbia	738	732	6	706	6	711	706	6	-----	27
Virginia	23,882	22,618	1,264	20,350	1,186	21,536	20,712	211	613	2,346
West Virginia	22,852	21,806	1,046	18,664	435	17,098	17,098	-----	-----	5,754
North Carolina	25,084	19,592	5,491	18,195	5,450	23,645	22,030	132	1,482	1,430
South Carolina	13,284	10,213	3,070	8,069	2,981	11,051	9,160	15	1,376	2,233
Georgia	12,086	9,526	2,560	7,530	2,498	10,028	9,220	-----	808	2,059
Florida	24,371	24,133	237	22,182	237	22,420	18,144	3,928	347	1,951
East South Central	99,571	79,620	19,950	74,973	19,926	94,898	27,344	3,906	63,649	4,672
Kentucky	20,791	18,017	2,775	17,374	2,775	20,648	5,946	260	14,443	143
Tennessee	40,284	30,648	9,036	28,920	9,636	38,556	938	3,436	34,182	1,728
Alabama	34,320	26,789	7,640	24,769	7,515	32,284	17,260	-----	15,024	2,045
Mississippi	4,107	4,167	-----	3,410	-----	3,410	3,200	210	-----	757
West South Central	102,714	100,122	2,592	74,329	2,592	76,921	67,401	5,800	3,720	25,793
Arkansas	7,168	6,107	1,061	4,839	1,061	5,899	4,813	175	911	1,268
Louisiana	21,836	21,836	-----	13,575	-----	13,575	12,696	879	-----	8,261
Oklahoma	10,135	9,403	731	9,165	731	9,898	8,356	323	1,217	238
Texas	63,576	62,776	800	46,750	800	47,550	41,537	4,423	1,391	16,025
Mountain	44,088	24,352	19,736	20,794	19,731	40,526	27,117	1,134	12,274	3,563
Montana	7,102	692	6,410	641	6,410	7,051	5,311	-----	1,740	51
Idaho	6,132	150	5,982	(2)	5,981	5,982	4,924	72	985	151
Wyoming	2,406	1,431	975	1,313	975	2,288	1,302	(3)	986	118
Colorado	6,626	5,513	1,016	6,068	1,015	6,084	4,511	625	948	446
New Mexico	3,838	3,775	64	3,363	64	3,426	2,819	196	412	412
Arizona	10,972	8,049	2,923	6,975	2,923	9,888	4,702	10	5,186	1,075
Utah	3,928	3,535	394	2,365	391	2,756	2,440	229	87	1,173
Nevada	3,179	1,207	1,072	1,069	1,972	3,041	1,109	3	1,929	138
Pacific	132,142	56,101	76,041	53,010	75,709	128,720	67,987	14,431	46,301	3,422
Washington	40,468	913	39,555	-1	39,366	39,365	3,826	3,056	32,482	1,103
Oregon	13,945	634	13,311	37	13,233	13,270	4,381	178	8,711	675
California	74,729	51,895	22,834	50,792	22,834	73,626	57,726	11,052	4,848	1,103
Alaska	663	406	257	166	257	423	18	144	261	240
Hawaii	2,337	2,253	84	2,016	20	2,036	2,036	-----	-----	301

¹ Includes cooperatives. ² Less than 500,000 kw.-hr.

Source: Federal Power Commission; annual summaries and related monthly reports.

No. 731. WATER POWER—DEVELOPED, 1920 TO 1962, AND ESTIMATED UNDEVELOPED,
1962, BY STATES

[In thousands of kilowatts. As of December 31]

STATE	DEVELOPED WATER POWER (capacity of actual installations only)										Estimated undeveloped water power, 1962	
	Electric utilities only		Electric utilities and industrial plants									
			1939		1950		1960		1962			
	1920	1930	Total	Utilities	Total	Utilities	Total	Utilities	Total	Utilities		
United States ¹	3,704	8,585	12,075	11,004	18,675	17,675	33,092	32,367	38,161	37,418	116,100	
New England	291	753	1,115	833	1,239	971	1,520	1,255	1,515	1,252	3,100	
Maine	40	174	301	188	391	270	495	351	494	348	1,600	
New Hampshire	42	212	292	235	312	262	445	398	443	397	600	
Vermont	49	156	173	158	192	177	199	186	199	186	500	
Massachusetts	114	129	228	161	223	168	227	186	228	185	200	
Rhode Island	2	2	14	3	11	3	3	2	3	2	200	
Connecticut	44	70	107	88	107	89	151	132	149	133	200	
Middle Atlantic	662	1,290	1,633	1,563	1,678	1,602	2,472	2,391	4,479	4,407	5,200	
New York	540	1,074	1,229	1,105	1,225	1,155	2,028	1,982	4,035	3,968	1,700	
New Jersey	1	1	6	3	9	6	8	6	8	6	200	
Pennsylvania	120	215	399	395	444	441	436	433	436	433	3,300	
East North Central	372	602	790	703	901	828	929	832	911	815	1,900	
Ohio	17	18	16	12	16	12	9	6	3	3	300	
Indiana	11	35	38	35	37	37	31	31	30	30	600	
Illinois	43	50	51	49	54	49	42	38	41	39	300	
Michigan	167	258	368	344	399	384	419	381	411	371	300	
Wisconsin	134	247	318	263	396	347	427	376	426	376	400	
West North Central	257	279	537	501	629	577	1,594	1,552	2,031	1,989	4,900	
Minnesota	88	122	158	126	181	138	186	152	183	150	200	
Iowa	138	124	127	127	137	137	136	136	139	138	400	
Missouri	12	18	151	161	151	151	293	293	393	393	2,100	
North Dakota			(2)				400	400	400	400	200	
South Dakota	5	4	4	4	11	3	333	324	671	663	1,000	
Nebraska	7	11	87	86	142	142	240	240	239	239	700	
Kansas	7	6	9	7	6	6	6	6	6	6	300	
South Atlantic	589	1,603	2,224	1,803	2,767	2,297	3,773	3,592	4,099	3,919	11,000	
Delaware			(2)		1	1	1	1	1	1	400	
Maryland	1	272	273	271	272	271	272	271	272	271	271	
District of Columbia		2	3	2	3	3	3	3	3	3	3	
Virginia	45	83	204	182	207	183	416	396	416	396	2,000	
West Virginia	9	56	209	101	208	101	208	101	208	101	2,400	
North Carolina	144	397	651	400	662	662	1,220	1,206	1,288	1,275	1,500	
South Carolina	231	506	520	495	679	653	958	932	958	932	1,900	
Georgia	155	271	349	337	425	412	653	640	912	899	2,700	
Florida	4	14	14	14	13	13	42	42	42	42	100	
East South Central	170	863	1,270	1,140	2,729	2,721	3,750	3,742	4,201	4,193	3,800	
Kentucky	105	111	111	271	271	271	541	541	541	541	1,600	
Tennessee	97	127	432	310	1,238	1,238	1,910	1,910	1,921	1,921	400	
Alabama	72	632	727	719	1,220	1,212	1,299	1,291	1,739	1,731	1,600	
Mississippi											200	
West South Central	4	19	140	139	466	463	944	944	1,034	1,034	4,400	
Arkansas	1	11	67	67	148	145	388	388	478	478	1,500	
Louisiana			1	1								
Oklahoma	1	2	2	2	74	74	165	165	165	165	1,000	
Texas	2	6	71	71	245	245	391	390	390	390	1,900	
Mountain	487	784	1,583	1,581	2,286	2,282	4,621	4,618	4,731	4,774	26,900	
Montana	212	300	321	321	427	426	1,235	1,235	1,262	1,262	5,900	
Idaho	135	225	257	257	441	440	1,251	1,250	1,251	1,250	11,300	
Wyoming	2	12	47	47	79	79	189	189	212	212	1,100	
Colorado	48	52	67	66	92	91	253	253	266	266	2,500	
New Mexico	1	1	1	1	25	25	25	25	25	25	200	
Arizona	23	87	283	293	541	541	980	980	980	980	4,600	
Utah	58	98	93	92	94	94	100	100	102	101	1,300	
Nevada	9	9	504	504	587	586	587	586	683	682		
Pacific ¹	872	2,391	2,783	2,741	5,979	5,933	13,490	13,441	15,110	15,030	54,900	
Washington	241	506	312	734	2,501	2,564	7,002	6,974	8,140	8,113	18,600	
Oregon	65	156	286	278	783	766	2,434	2,414	2,654	2,633	6,500	
California	566	1,640	1,685	1,680	2,006	2,004	4,054	4,052	4,210	4,208	9,500	
Alaska	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	89	73	20,000	
Hawaii	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	18	3	300	

n.a. Not available.

¹ Beginning 1962, includes Alaska and Hawaii. ² Less than 500 kw.

Source: Federal Power Commission; annual summaries and related monthly reports.

No. 732. FEDERAL ELECTRIC UTILITY PROJECTS—INSTALLED CAPACITY AND INVESTMENT ALLOCATED TO ELECTRIC PLANT: 1955, 1960, AND 1962

[As of June 30. Beginning 1960, includes Alaska and Hawaii. Comprises only the electricity generating plant of these projects and excludes projects not primarily manufacturing electricity (e.g., West Point, Annapolis). Investments represent allocation to power projects for capital equipment and improvements. Reserves for depreciation have not been deducted]

PROJECT GROUP OR SYSTEM	INSTALLED CAPACITY (1,000 kw.)			INVESTMENT ALLOCATED ¹ (\$1,000)		
	1955	1960	1962	1955	1960	1962
Total.	15,033	22,616	24,503	3,811,843	5,397,699	6,254,257
Percent capacity of all electric utilities	13.1	13.5	12.8			
Central Valley: Bureau of Reclamation	522	630	630	134,081	137,861	172,740
Columbia Basin	3,619	6,063	6,519	1,020,600	1,607,100	1,756,530
Bonneville Power Administration (transmission)				368,914	479,913	520,504
Bureau of Reclamation	2,259	2,282	2,282	218,084	277,200	275,915
Corps of Engineers	1,360	3,781	4,237	433,602	849,987	960,021
Hoover and Parker-Davis: Bureau of Reclamation	1,595	1,595	1,690	205,598	208,635	197,354
Missouri Basin	687	1,142	1,514	369,577	661,378	931,697
Bureau of Reclamation	362	397	444	214,278	304,212	350,699
Corps of Engineers	325	745	1,070	155,299	357,161	580,998
Southeastern Power Administration	1,031	1,271	1,415	250,142	410,111	489,816
Southeastern Power Administration (transmission)				63	88	94
Corps of Engineers	1,031	1,271	1,415	250,079	410,023	489,722
Southwestern Power Administration	426	601	791	144,629	230,192	240,932
Southwestern Power Administration (transmission)				23,444	27,108	28,754
Corps of Engineers	426	601	791	121,185	203,084	212,178
Tennessee Valley Authority	7,005	11,032	11,646	1,634,057	2,054,316	2,369,318
Other projects	148	282	298	44,159	88,110	95,870
Bureau of Reclamation	83	218	234	20,483	61,941	69,701
Corps of Engineers	18	18	18	11,834	11,846	11,846
Bureau of Indian Affairs	15	14	14	6,342	7,602	7,602
International Boundary and Water Commission	32	32	32	5,500	6,721	6,721

¹ Includes estimates.

Source: Federal Power Commission, unpublished data.

**No. 733. RURAL ELECTRIFICATION ADMINISTRATION—ELECTRIC PROGRAM,
SUMMARY OF OPERATIONS: 1940 TO 1963**

[Includes data from date of first loan to borrowers in Virgin Islands (1940), Alaska (1941), and Puerto Rico (1952)]

ITEM	1940	1950	1955	1959	1960	1961	1962	1963
Loans approved, cumulative, Dec. 31: ¹								
Borrowers ²	791	1,076	1,077	1,085	1,087	1,091	1,096	1,101
Amount mil. dol.	351	2,312	3,125	4,011	4,266	4,509	4,786	5,073
Systems in operation, Dec. 31: ³								
Systems ⁴	685	1,007	1,026	1,032	1,038	1,038	1,042	1,046
Miles energized ⁵ 1,000.	268	1,089	1,362	1,446	1,465	1,483	1,504	1,527
Consumers served ⁶ 1,000.	674	3,413	4,251	4,722	4,826	4,956	5,095	5,235
Borrowers' operations during year: ⁷								
Energy generated mil. kw.-hr.	n.a.	1,077	3,255	4,464	4,922	5,118	6,043	6,871
Energy purchased mil. kw.-hr.	n.a.	7,270	14,996	24,033	26,057	27,754	30,134	33,382
Energy sold mil. kw.-hr.	n.a.	6,884	15,739	25,071	27,269	28,967	31,880	35,390
Revenue mil. dol.	n.a.	229	420	575	615	651	697	744
Average monthly consumption per consumer:								
All consumers kw.-hr.	n.a.	180	306	432	466	487	526	550
Residential consumers ⁸ kw.-hr.	n.a.	147	242	334	357	375	401	426
Total utility plant mil. dol.	n.a.	n.a.	2,706	3,486	3,697	3,897	4,104	4,250
Employees ⁹	n.a.	n.a.	n.a.	n.a.	28,084	29,046	29,500	

n.a. Not available.

¹ Net; i.e., excludes loans rescinded. For years prior to 1948, includes amounts not yet under loan contract.

² Organizations, mainly cooperatives, to which loans for extending central station electric service in rural areas are made.

³ Includes data at time of repayment of loan for borrowers whose loans have been repaid in full. As of Dec. 31, 1963, there were 59 such borrowers, with 17,339 miles energized and 103,212 consumers served.

⁴ Rural electric distribution, generation, and transmission systems operated by REA borrowers.

⁵ Pole miles of electric distribution and transmission line in service.

⁶ Through 1954, this item was headed "Consumers connected." The change was a result of a revised definition of a consumer as reported by REA borrowers, effective Jan. 1, 1955. It resulted in a downward adjustment in the national total of about 60,000 for 1955, chiefly through elimination of idle services.

⁷ Excludes energy sales and revenues of power sold by one REA borrower to another.

⁸ Includes rural-nonfarm and farm consumers.

Source: Dept. of Agriculture, Rural Electrification Administration; unpublished data.

Light and Power—Fuels

535

No. 734. ELECTRIC LIGHT AND POWER INDUSTRY—ENERGY GENERATED, SALES, REVENUE, AND CUSTOMERS: 1940 TO 1963

[Beginning 1960, includes Alaska and Hawaii. Beginning 1960, the classification of "rural" is allocated to the appropriate other classes of service]

CLASS	1940	1950	1955	1960	1962	1963
Energy generated ¹	mil. kw..hr.	141,837	329,141	547,038	756,206	855,780
Sales to ultimate customers.....	mil. kw..hr.	118,643	280,539	480,921	683,199	776,088
Residential or domestic.....	mil. kw..hr.	23,317	67,030	120,524	196,400	226,414
Rural (distinct rural rates).....	mil. kw..hr.	1,901	7,400	10,751		
Commercial and industrial:						
Small light and power.....	mil. kw..hr.	22,373	50,446	76,254	114,806	144,095
Large light and power.....	mil. kw..hr.	59,557	139,055	253,711	344,799	373,916
All other.....	mil. kw..hr.	11,405	16,598	19,681	27,194	31,663
Revenue from ultimate customers.....	\$1,000,000.	2,440	5,086	8,020	11,516	13,025
Residential or domestic.....	\$1,000,000.	896	1,932	3,187	4,856	5,458
Rural (distinct rural rates).....	\$1,000,000.	49	158	229		
Commercial and industrial:						
Small light and power.....	\$1,000,000.	689	1,334	1,909	2,828	3,420
Large light and power.....	\$1,000,000.	631	1,405	2,360	3,334	3,591
All other.....	\$1,000,000.	174	258	336	498	556
Ultimate customers, Dec. 31.....	1,000.	30,191	44,986	52,559	58,870	61,324
Residential or domestic.....	1,000.	24,952	37,533	44,409	51,446	53,649
Rural (distinct rural rates).....	1,000.	686	1,506	1,648		
Commercial and industrial:						
Small light and power.....	1,000.	4,260	5,466	6,020	6,760	6,981
Large light and power.....	1,006.	178	235	311	454	441
All other.....	1,000.	115	157	171	210	253

¹ Figures obtained by Edison Electric Institute from Federal Power Commission, except that estimates by Edison Electric Institute are included for Alaska and Hawaii.

² Preliminary.

Source: Edison Electric Institute, New York, N.Y.; annual report, *Statistical Bulletin*.

No. 735. CONSUMPTION OF FUELS BY ELECTRIC UTILITIES: 1920 TO 1963

[For years ending December 31. Excludes Alaska and Hawaii. Includes use of fuels for stand-by purposes. See also *Historical Statistics, Colonial Times to 1967*, series S 36-43]

YEAR	Net generation by fuel ¹	FUEL CONSUMED								
		Total coal equivalent	Coal			Oil	Gas	Per kilowatt-hour		
			Total ²	Bituminous ²	Anthracite			Coal	Oil	Gas
		Mil. kw..hr.	1,000 short tons	1,000 short tons	1,000 short tons	42-gal. bbl.	Mil. cu. ft.	Lb.	Gal.	Cu. ft.
1920.....	23,495	35,791	31,640	30,099	1,540	12,690	22,136	3.0	0.254	36.9
1925.....	39,443	40,014	35,615	33,803	1,812	9,794	45,472	2.0	0.165	23.9
1930.....	89,588	47,645	40,278	38,130	2,148	8,805	119,553	1.60	0.132	19.0
1935.....	66,689	40,797	32,715	30,936	1,779	11,257	124,118	1.44	0.118	17.0
1940.....	93,963	62,942	51,474	49,126	2,348	16,325	180,096	1.34	0.112	16.5
1945.....	142,331	92,642	74,725	71,603	3,122	20,228	326,212	1.30	0.109	16.5
1950.....	232,813	138,421	91,871	88,262	3,609	75,420	628,919	1.19	0.094	14.1
1955.....	433,786	206,020	143,759	140,550	3,209	75,274	1,153,280	0.95	0.085	12.1
1960.....	607,142	266,064	176,634	173,882	2,751	85,340	1,724,702	0.88	0.078	10.9
1961.....	640,189	276,369	182,121	179,612	2,509	85,736	1,825,117	0.86	0.076	10.8
1962.....	² 684,032	293,573	193,238	190,941	2,297	85,768	1,965,974	0.858	0.077	10.7
1963 (prel.)..	² 748,548	320,168	211,193	209,038	2,155	89,290	2,142,930	0.856	0.075	10.6

¹ Beginning 1961, includes limited output by use of wood, waste, and nuclear fuel.

² Includes lignite.

³ Includes nuclear power kw..hr. (in millions), 2,270 in 1962 and 3,216 in 1963; and wood, waste and geothermal kw..hr. (in millions), 229 in 1962 and 298 in 1963.

Source: Federal Power Commission; annual summaries and related monthly reports.

No. 736. ELECTRIC UTILITIES—BALANCE SHEET AND INCOME ACCOUNT OF PRIVATELY OWNED CLASS A AND B COMPANIES: 1940 TO 1962

[In millions of dollars. For years ending December 31. For 1960, includes Alaska. Beginning 1960, includes Hawaii. Data cover reports of all companies with annual electric revenues over \$1,000,000 representing about 98 percent of the privately owned industry. See also *Historical Statistics, Colonial Times to 1957*, series V 128-142.]

ITEM	1940	1945	1950	1955	1960	1961	1962
COMPOSITE BALANCE SHEET							
Assets and other debits.....	15,477	14,452	20,523	30,992	44,742	47,009	49,191
Utility plant.....	14,407	14,491	21,443	33,709	50,308	53,241	56,158
Accumulated provisions for depreciation and amortization.....	1,879	3,015	4,365	6,391	9,852	10,892	11,672
Net utility plant.....	12,528	11,446	17,078	27,318	40,456	42,549	44,486
Other property and investments.....	1,380	1,090	1,235	933	1,004	1,088	1,125
Current and accrued assets.....	1,123	1,672	2,058	2,567	3,066	3,151	3,320
Deferred debits.....	446	244	152	174	216	226	260
Liabilities and other credits.....	15,477	14,452	20,523	30,992	44,742	47,009	49,191
Capital stock.....	6,471	5,950	7,021	10,404	13,322	13,801	14,325
Other paid-in capital.....	279	282	589	1,083	1,747	1,904	1,990
Earned surplus.....	860	766	1,346	2,191	3,736	4,011	4,481
Long-term debt.....	6,871	6,118	9,179	14,316	21,035	22,028	22,912
Current and accrued liabilities.....	692	965	1,527	2,381	3,112	3,286	3,285
Deferred credits and operating reserves.....	261	325	195	248	277	282	354
Contributions in aid of construction.....	43	46	66	109	188	201	218
Accumulated deferred income taxes.....				261	1,325	1,496	1,626
COMPOSITE INCOME ACCOUNT							
Electric operating revenues.....	2,404	3,171	4,784	7,199	10,116	10,666	11,302
Electric operating expenses.....	1,687	2,408	3,828	5,701	7,917	8,322	8,801
Net electric operating revenues.....	737	763	956	1,497	2,199	2,344	2,591
Income from electric plant leased to others.....	8	5	5	3	2	2	2
Electric utility operating income.....	744	768	961	1,500	2,201	2,346	2,593
Other utility operating income.....	61	65	72	119	196	217	242
Total utility operating income.....	805	833	1,038	1,620	2,397	2,568	2,835
Other income.....	68	54	68	63	79	67	73
Total income.....	873	887	1,101	1,683	2,476	2,630	2,908
Income deductions.....	325	353	279	439	693	755	855
Net income.....	548	554	822	1,244	1,783	1,875	2,053

Source: Federal Power Commission; annual report, *Statistics of Electric Utilities in the United States*.

No. 737. GAS UTILITY AND PIPELINE INDUSTRY—BALANCE SHEET AND INCOME ACCOUNT: 1940 TO 1962

[In millions of dollars. Beginning 1960, includes Hawaii, and 1961, Alaska. Represents companies owned by private investors. Excludes operations of companies distributing gas in bottles or in tanks]

ITEM	1940	1945	1950	1955	1959	1960	1961	1962
COMPOSITE BALANCE SHEET								
Assets and other debits.....	4,980	5,610	9,010	15,435	22,845	24,570	26,555	28,500
Utility plant and adjustments.....	4,330	4,770	7,620	13,305	19,200	20,835	22,385	23,940
Investment and fund accounts.....	200	185	360	525	1,300	1,380	1,635	1,705
Current and accrued assets.....	360	590	970	1,465	2,150	2,185	2,340	2,650
Deferred debits ¹	90	65	60	140	195	170	195	205
Liabilities and other credits.....	4,980	5,610	9,010	15,435	22,845	24,570	26,555	28,500
Capital stock.....	1,740	1,705	2,405	3,905	5,490	5,785	6,280	6,645
Long-term debt.....	1,575	1,495	3,145	5,900	8,740	9,130	10,080	10,450
Current and accrued liabilities.....	245	350	735	1,300	2,195	2,420	2,460	2,890
Reserve for depreciation, retirement, depletion, etc.....	870	1,400	1,740	2,775	4,065	4,570	5,025	5,615
Capital surplus.....	n.a.	120	135	200	160	145	175	100
Retained income.....	n.a.	375	720	1,040	1,660	1,880	1,875	2,000
Other liabilities and credits.....	550	165	130	225	535	640	660	800
COMPOSITE INCOME ACCOUNT								
Operating revenues.....	1,054	1,363	2,553	5,063	7,690	8,696	9,282	10,019
Operating revenue deductions.....	839	1,152	2,182	4,398	6,696	7,587	8,124	8,745
Net operating revenues.....	215	211	371	665	994	1,109	1,158	1,274
Income from utility plant leased to others.....	—	(²)	1	2	3	3	6	6
Utility operating income.....	214	211	372	667	997	1,112	1,164	1,280
Other income (nonoperating).....	9	15	33	48	78	110	90	136
Gross income.....	223	226	405	715	1,075	1,222	1,254	1,418
Income deductions.....	78	74	88	206	343	392	436	509
Net income.....	145	152	317	509	732	830	818	907

¹ n.a. Not available.

¹ Includes capital stock discount and expense and reacquired securities. Beginning 1959, reacquired securities are deducted from the appropriate capital account.

² Less than \$500,000.

Source: American Gas Association, New York, N.Y.; yearbook, *Gas Facts*.

Gas Industry

537

No. 738. GAS UTILITY INDUSTRY—CUSTOMERS AND REVENUES, BY CLASS OF SERVICE: 1935 TO 1963

[Beginning 1960, includes Hawaii. Beginning 1961, natural gas only included for Alaska. Covers natural, manufactured, mixed, and liquid petroleum gas. Based on questionnaire mailed to all privately owned gas utilities and municipally owned gas departments in the United States, except those with annual revenues less than \$25,000, which in the aggregate account for only a negligible portion of the industry]

YEAR	CUSTOMERS (1,000) ¹					REVENUES (\$1,000,000) ²				
	Total	Residen-tial	Com-mercial	Indus-trial	Other	Total	Residen-tial	Com-mercial	Indus-trial	Other
1935-----	15,819	14,725	1,014	72	8	727	503	91	130	2
1940-----	17,600	16,381	1,138	73	8	872	573	112	182	5
1945-----	19,977	18,607	1,278	80	12	1,153	705	149	281	18
1950-----	24,001	22,146	1,739	100	16	1,948	1,177	266	480	28
1955-----	28,479	26,283	2,048	121	27	3,450	2,007	424	938	81
1957-----	30,476	28,101	2,211	132	32	4,134	2,379	506	1,150	99
1958-----	31,242	28,787	2,287	134	35	4,568	2,658	571	1,229	111
1959-----	32,006	29,530	2,364	136	36	5,065	2,870	633	1,431	131
1960-----	33,054	30,418	2,458	140	38	5,617	3,177	723	1,563	153
1961-----	33,831	31,118	2,520	147	37	5,993	3,377	789	1,658	169
1962-----	34,683	31,893	2,598	156	37	6,445	3,603	874	1,796	171
1963 (prel.)	35,576	32,697	2,670	162	38	6,770	3,755	929	1,905	181

¹ Yearly averages.

² Excludes revenues from sales for resale.

Source: American Gas Association, New York, N.Y.; yearbook, *Gas Facts*.

No. 739. UTILITY GAS MAINS—MILEAGE, BY TYPE OF GAS AND TYPE OF MAIN: 1945 TO 1963

[As of December 31. Beginning 1960, includes Hawaii. Beginning 1961, natural gas only included for Alaska. Excludes service pipe. Data not adjusted to common diameter equivalent]

TYPE OF GAS AND MAIN	1945	1950	1955	1958	1959	1960	1961	1962	1963 (prel.)
All types-----	310,670	387,470	496,740	571,500	599,830	630,950	658,960	683,230	713,400
Field and gathering-----	27,000	32,850	45,680	52,010	54,130	55,850	56,730	58,680	61,200
Transmission-----	82,190	113,050	145,970	165,360	174,280	183,660	191,840	196,380	205,400
Distribution-----	201,480	241,570	305,090	354,130	371,420	301,440	410,390	428,170	446,800
Natural gas-----	218,000	314,480	448,770	540,790	573,950	607,980	637,120	663,560	697,880
Field and gathering-----	27,000	32,850	45,680	52,010	54,130	55,850	56,730	58,680	61,200
Transmission-----	77,280	109,360	142,490	162,990	172,160	181,770	189,990	194,970	204,440
Distribution-----	113,720	172,270	260,600	325,790	347,600	370,360	390,400	409,910	432,240
Manufactured gas-----	72,000	55,420	11,960	4,460	1,810	1,570	1,510	1,500	1,480
Transmission-----	3,410	5,230	420	50	30	20	30	20	20
Distribution-----	68,590	53,190	11,540	4,410	1,780	1,550	1,480	1,480	1,460
Mixed gas-----	18,600	11,990	31,440	23,080	21,580	19,450	18,450	16,460	12,530
Transmission-----	1,480	1,370	2,900	2,250	2,070	1,860	1,810	1,350	930
Distribution-----	17,120	10,620	28,450	20,830	19,510	17,590	16,640	15,080	11,600
Liquefied petroleum gas-----	2,010	5,580	4,570	3,170	2,490	1,950	1,880	1,710	1,510
Transmission-----	20	90	70	70	20	10	10	10	10
Distribution-----	1,990	5,490	4,500	3,100	2,470	1,940	1,870	1,700	1,500

Source: American Gas Association, New York, N.Y.; yearbook, *Gas Facts*.

No. 740. GAS UTILITY INDUSTRY—CUSTOMERS AND REVENUES, BY TYPE OF GAS,
CLASS OF SERVICE, AND STATES: 1962

[See headnote, table 738]

TYPE OF GAS AND STATE	CUSTOMERS (1,000) ¹					REVENUES (\$1,000,000) ²				
	Total	Residential	Commer- cial	Indus- trial	Other	Total	Resi- dential	Com- mer- cial	Indus- trial	Other
United States ³	34,683.4	31,893.0	2,597.9	155.9	36.6	6,445	3,603	874	1,796	171
Natural gas ³	32,673.6	30,014.1	2,477.1	146.6	35.8	6,165	3,391	841	1,763	170
Manufactured gas	143.9	132.3	9.8	1.7	0.1	19	14	3	2	(4)
Mixed gas	1,778.1	1,667.4	102.4	7.6	0.7	250	191	27	30	1
L.P. gas	87.8	76.2	8.6	(8)	(8)	11	7	3	(4)	(4)
New England	1,628.6	1,525.9	92.0	9.9	0.8	243	178	34	28	2
Connecticut	375.7	350.4	22.9	2.3	0.1	59	41	8	10	(4)
Maine	31.4	29.8	1.5	0.1		4	3	1		
Massachusetts	1,013.5	949.9	57.3	5.6	0.7	150	114	21	14	1
New Hampshire	38.3	35.6	2.5	0.2	(8)	6	4	1	1	(4)
Rhode Island	154.3	145.5	7.1	1.7	(8)	22	16	3	3	(4)
Vermont	15.4	14.7	0.7	(8)	(8)	1	1	(4)	(4)	
Middle Atlantic	7,733.6	7,162.6	530.8	29.5	10.7	1,198	808	170	207	13
New Jersey	1,561.5	1,418.3	137.0	6.2	(8)	228	163	37	28	(4)
New York	4,004.9	3,711.8	270.4	15.1	7.6	521	368	83	60	9
Pennsylvania	2,167.2	2,082.5	123.4	8.2	3.1	449	277	50	119	4
East North Central	7,715.5	7,153.1	524.7	31.1	6.6	1,655	1,017	234	393	12
Illinois	2,415.2	2,264.7	137.0	13.2	0.3	472	307	58	106	(4)
Indiana	838.1	768.1	67.0	2.7	0.3	172	90	23	59	1
Michigan	1,576.2	1,449.5	119.4	7.3	(8)	359	232	55	71	1
Ohio	2,290.9	2,116.6	163.6	4.7	6.0	535	315	83	128	9
Wisconsin	595.1	554.2	37.7	3.2	(8)	119	73	15	28	2
West North Central	2,833.6	2,576.7	288.1	17.9	0.9	608	338	94	159	16
Iowa	486.9	436.3	49.1	1.5	(8)	112	64	22	23	3
Kansas	555.8	505.6	46.6	3.4	0.2	105	47	12	41	5
Minnesota	516.3	478.2	34.4	3.6	0.1	135	80	19	36	1
Missouri	857.7	791.2	62.5	3.8	0.2	163	98	24	38	2
Nebraska	308.3	269.3	33.4	5.2	0.4	71	37	12	18	
North Dakota	40.8	36.2	4.5	0.1	(8)	7	4	2	1	(4)
South Dakota	67.8	59.9	7.6	0.3	(8)	16	8	4	3	(4)
South Atlantic	2,694.4	2,468.5	209.6	10.5	5.8	547	292	75	170	9
Delaware	66.4	62.8	3.5	0.1	(8)	14	8	1	4	(4)
Dist. of Columbia	176.3	155.7	18.2	0.9	1.5	29	20	7		1
Florida	268.9	248.8	19.3	0.3	0.5	61	16	10	34	1
Georgia	579.4	533.3	42.3	3.6	0.2	111	56	14	40	1
Maryland	587.9	548.5	36.6	2.0	0.8	100	74	10	16	1
North Carolina	182.9	134.1	17.2	1.5	0.1	41	17	7	17	1
South Carolina	116.2	102.1	13.2	0.6	0.3	32	10	4	17	(4)
Virginia	388.5	357.0	29.6	1.0	0.9	78	49	11	15	2
West Virginia	357.9	326.2	29.7	0.5	1.5	80	42	10	26	2
East South Central	1,554.8	1,404.9	140.1	5.0	4.8	340	151	47	130	11
Alabama	480.8	445.1	33.4	1.0	1.3	103	47	11	44	(4)
Kentucky	459.8	418.1	39.7	0.7	1.3	88	51	13	22	3
Mississippi	286.4	253.6	29.9	1.5	1.4	63	21	7	33	2
Tennessee	327.8	288.1	37.1	1.8	0.8	85	33	17	31	5
West South Central	4,014.0	3,629.6	348.6	30.8	5.0	700	253	64	353	30
Arkansas	321.0	279.9	38.9	2.1	0.1	67	24	9	33	1
Louisiana	728.7	671.9	52.9	2.9	1.0	155	39	8	104	4
Oklahoma	614.6	552.8	57.4	3.7	0.7	94	46	12	26	10
Texas	2,349.7	2,125.0	199.4	22.1	3.2	384	144	34	190	16
Mountain	1,399.1	1,249.9	142.0	5.2	2.0	278	126	43	102	6
Arizona	336.4	304.7	29.8	1.7	0.2	64	24	7	33	1
Colorado	429.4	379.1	49.6	0.6	0.1	74	38	17	18	1
Idaho	37.2	30.2	6.8	0.2		15	4	3	8	
Montana	123.9	109.9	13.5	0.5	(8)	26	13	6	7	1
Nevada	29.3	27.9	1.4	(8)	(8)	12	4	1	7	(4)
New Mexico	188.1	169.0	16.3	1.6	1.2	38	15	4	15	3
Utah	184.9	168.4	16.1	0.4	(8)	37	22	3	12	(4)
Wyoming	69.9	60.7	8.5	0.2	0.5	12	6	2	3	1
Pacific ³	5,109.8	4,721.8	372.0	16.0	(8)	877	440	112	253	72
California	4,808.5	4,463.3	332.5	12.7	(8)	788	406	95	215	72
Oregon	114.5	99.7	13.8	1.0	(8)	30	13	5	11	(4)
Washington	146.3	122.5	23.0	0.8	(8)	52	17	10	24	(4)
Alaska ⁴	1.4	1.0	0.3	0.1	(8)	1	(4)	(4)	1	
Hawaii	39.1	35.3	2.4	1.4		6	4	1	1	

¹ Averages for the year. ² Excludes revenues from sales for resale.

³ Natural gas only included for Alaska.

⁴ Less than \$500,000. ⁵ Less than 50 customers. ⁶ Natural gas only.

Section 20

Science

This section presents statistics relating to various aspects of scientific and technical activity. Major topics are research and development, training and employment of scientists and engineers, atomic energy, space vehicles, and patents and trademarks. Principal sources of these data are the National Science Foundation, the Atomic Energy Commission, and the National Aeronautics and Space Administration.

The National Science Foundation gathers data chiefly through recurring statistical surveys and the National Register of Scientific and Technical Personnel (see below). Current Foundation publications containing data on funds for research and development and on scientific and engineering personnel include the bulletin series, *Reviews of Data on Research & Development* and *Scientific Manpower Bulletins*; the regular reports, *Federal Funds for Research, Development, and Other Scientific Activities* (formerly *Federal Funds for Science*), *Scientists and Engineers in the Federal Government*, *Research and Development in Industry*, *Scientific and Technical Personnel in Industry*, and *American Science Manpower*; occasional reports relating to colleges, universities, and other nonprofit institutions; special reports such as *Scientific Manpower From Abroad*; and policy reports relating to national allocation of manpower and funds to science and technology. Statistical surveys in these areas pose particularly difficult problems of concept and definition and the data should, therefore, be regarded as broad estimates rather than precise quantitative statements. Detailed discussions of the scope and limitations of the data appear in the source publications.

Neither the National Aeronautics and Space Administration nor the Atomic Energy Commission publish any statistical reports as such. NASA's *Semiannual Report* contains current data on finances and its biweekly *Satellite Situation Report* presents information on artificial satellites, including both objects in orbit and decayed objects; and its one-page *Space Activities Summary*, issued for each space vehicle it launches, gives data on the launching vehicle, its payload, and its performance. The Atomic Energy Commission's annual and semiannual reports contain data on atomic energy, equipment, finances, and licenses.

Other sources of statistics on scientific and technical activities include *The Budget of the United States Government*, which contains summary financial data on all Federal research and development programs; the report series *Resources for Medical Research*, issued for the first time in August 1962 by the Public Health Service of the Department of Health, Education, and Welfare, and designed to present timely information on funds, manpower, facilities, and institutions devoted to medical and health-related research; and the *Annual Report of the Commissioner of Patents*, issued by the Department of Commerce's Patent Office and presenting data on patent applications and issuances and on trademark registrations and renewals.

Research and development.—The National Science Foundation defines research as a "systematic and intensive study directed toward a fuller knowledge of the subject studied" and development as "the systematic use of scientific knowledge directed toward the production of useful materials, devices, systems, methods, or processes." The data on funds are presented within the framework of a national economic structure composed of four sectors: (1) The *government sector*, made up primarily of Federal executive agencies; (2) the *industry sector*, consisting of manufacturing and nonmanufacturing firms and the Federal contract research centers they administer; (3) the *colleges*

and universities sector, composed of colleges, universities, and their affiliated institutions, agricultural experiment stations and associated schools of agriculture, and Federal contract research centers administered by educational institutions; and (4) the other nonprofit institutions sector, consisting of such organizations as private philanthropic foundations, nonprofit research institutes, voluntary health agencies, and Federal contract research centers administered by nonprofit organizations. The R&D funds reported consist of current operating costs, including those for planning and administration, except as otherwise noted. They exclude funds for routine testing, mapping and surveying, collection of general-purpose data, dissemination of scientific information, and training of scientific manpower.

Scientists and engineers.—Scientists and engineers are defined as persons engaged in scientific and engineering work at a level requiring a knowledge of sciences equivalent at least to that acquired through completion of a 4-year college course. They are generally classified according to the fields of their employment and not according to the discipline in which they received their major training. Persons in Federal Government and in industry employment are counted on an individual basis; those in colleges and universities are counted in terms of full-time equivalent, which allows proportionate weight, statistically, for persons employed part-time. The National Register of Scientific and Technical Personnel is a comprehensive program, conducted by the National Science Foundation, for the voluntary registration of scientists. It does not include all scientists in the United States. Coverage is now being extended to engineers. The Register provides valuable statistical information on the demographic and other characteristics of scientists not available elsewhere.

Alaska and Hawaii.—Statements specifying inclusion or exclusion of figures for Alaska and Hawaii appear in the headnotes to each table unless the inclusion or exclusion is self-evident.

Historical statistics.—Tabular headnotes provide cross-references, where applicable, to *Historical Statistics of the United States, Colonial Times to 1957*. See preface.

No. 741. FUNDS FOR TOTAL RESEARCH AND DEVELOPMENT, 1958-59 TO 1962-63, AND FOR BASIC RESEARCH, 1958-59 TO 1961-62, BY PERFORMANCE SECTOR, DISTRIBUTED BY SOURCE

[In millions of dollars. Includes Alaska and Hawaii, except industry data prior to 1958-59. Hyphenated time periods indicate that data are for a variety of financial years beginning in the earlier year and ending in the later year. Data refer in general to the natural sciences; however, some funds for psychology and the social sciences could not be eliminated; the data also exclude funds for R&D capital]

PERFORMANCE SECTOR AND SOURCE OF FUNDS ¹	RESEARCH AND DEVELOPMENT ²					BASIC RESEARCH			
	1958-59	1959-60	1960-61	1961-62 (prel.)	1962-63 (prel.)	1958-59	1959-60	1960-61	1961-62 (prel.)
Total funds used.....	11,130	12,680	13,890	14,740	16,420	975	1,064	1,256	1,488
Federal Government.....	1,730	1,830	1,900	2,090	2,710	180	147	193	238
Federal funds.....	1,730	1,830	1,900	2,090	2,710	180	147	193	238
Industry ³	8,360	9,610	10,510	10,870	11,560	305	332	388	403
Federal funds.....	4,760	5,640	6,080	6,310	6,730	53	84	91	89
Industry funds.....	3,600	3,970	4,430	4,560	4,830	252	248	297	314
Colleges and universities ³	840	1,000	1,200	1,400	1,700	420	500	575	695
Federal funds.....	570	720	890	1,050	1,300	256	305	330	442
Industry funds.....	40	40	50	55	65	17	20	23	25
College and university funds ⁴	190	200	210	230	260	118	140	161	180
Other nonprofit institutions funds ⁴	40	40	50	65	75	29	35	41	48
Other nonprofit institutions ³	200	240	280	380	450	70	85	100	152
Federal funds.....	110	130	140	200	255	35	42	50	80
Industry funds.....	40	50	70	90	100	6	7	8	12
Other nonprofit institutions funds ⁴	50	60	70	90	95	29	36	42	60

¹ Data on funds are based on reports by the performers.

² Includes basic research, applied research, and development.

³ Includes expenditures at Federal contract research centers administered by organizations in this sector.

⁴ Includes State and local funds received by these institutions and used for research and development.

Source: National Science Foundation; *Reviews of Data on Research & Development*, No. 41, September 1963.

Research and Development

541

No. 742. FUNDS FOR TOTAL RESEARCH AND DEVELOPMENT, 1953-54 TO 1962-63, AND FOR BASIC RESEARCH, 1953-54 TO 1961-62, BY SOURCE AND BY PERFORMANCE SECTOR

[In millions of dollars. See headnote, table 741]

ITEM AND YEAR	Total	SOURCES OF FUNDS				PERFORMANCE OF RESEARCH AND DEVELOPMENT BY			
		Federal Government ¹	Industry	Colleges and universities ²	Other non-profit institutions ²	Federal Government	Industry ³	Colleges and universities ³	Other non-profit institutions ³
RESEARCH AND DEVELOPMENT⁴									
1953-54-----	5,150	2,740	2,240	130	40	970	3,630	450	100
1954-55-----	5,620	3,070	2,355	140	45	950	4,070	480	120
1955-56-----	6,390	3,670	2,510	155	55	1,090	4,640	530	130
1956-57-----	8,670	5,095	3,325	180	70	1,280	6,800	650	140
1957-58-----	10,100	6,390	3,450	190	70	1,440	7,730	780	150
1958-59-----	11,130	7,170	3,680	190	90	1,730	8,360	840	200
1959-60-----	12,680	8,320	4,060	200	100	1,830	9,610	1,000	240
1960-61-----	13,890	9,010	4,550	210	120	1,900	10,510	1,200	280
1961-62 (prel.)-----	14,740	9,650	4,705	230	155	2,090	10,870	1,400	380
1962-63 (prel.)-----	16,420	10,905	4,995	260	170	2,710	11,560	1,700	450
BASIC RESEARCH									
1953-54-----	432	195	147	62	28	47	151	208	26
1954-55-----	485	(⁵)	(⁶)	70	35	55	166	230	34
1955-56-----	547	(⁶)	(⁶)	75	38	65	189	250	43
1956-57-----	694	(⁶)	(⁶)	90	46	90	253	300	51
1957-58-----	834	422	249	111	52	111	271	392	60
1958-59-----	975	524	275	118	58	180	305	420	70
1959-60-----	1,064	578	275	140	71	147	332	500	85
1960-61-----	1,256	684	328	161	83	103	388	575	100
1961-62 (prel.)-----	1,488	849	351	180	108	238	403	695	152

¹ Data on funds are based on reports by the performers.

² Includes State and local funds received by these institutions and used for research and development.

³ Includes expenditures at Federal contract research centers administered by organizations in this sector.

⁴ Includes basic research, applied research, and development.

⁵ Not available on a comparable basis.

Source: National Science Foundation, *Review of Data on Research & Development*, No. 41, September 1963.

No. 743. FEDERAL GOVERNMENT OBLIGATIONS FOR RESEARCH AND DEVELOPMENT, BY CHARACTER OF WORK, AND FOR RESEARCH, BY FIELD OF SCIENCE: 1956 TO 1964

[In millions of dollars. For years ending June 30. Includes Alaska and Hawaii. Includes both intramural and extramural performance; excludes R&D plant. For explanation of the difference between obligations reported here and expenditures reported in tables 741 and 742, see headnote, table 744]

ITEM	1956	1957	1958	1959	1960	1961	1962	1963 (est.)	1964 (est.)
Total research and development¹ -----	2,802	3,738	4,383	6,468	7,358	8,852	10,046	12,723	15,081
Basic research-----	201	254	327	484	585	804	1,085	1,395	1,782
Applied research-----	642	602	706	906	1,342	1,533	1,892	2,850	4,003
Development-----	1,959	2,822	3,350	5,078	5,431	6,515	7,069	8,478	9,296
Total research -----	844	916	1,034	1,390	1,927	2,337	2,977	4,245	5,785
Life sciences:									
Biological-----	55	67	70	88	106	133	152	205	266
Medical-----	99	156	214	268	342	441	598	740	841
Agricultural-----	44	56	59	64	68	63	71	76	86
Psychological sciences-----	n.a.	n.a.	n.a.	24	38	51	56	67	97
Physical sciences:									
Physical science proper-----	n.a.	n.a.	n.a.	288	421	654	988	1,249	1,537
Mathematics-----	n.a.	n.a.	n.a.	16	24	45	69	117	168
Engineering-----	n.a.	n.a.	n.a.	461	861	812	830	1,565	2,570
Social sciences-----	n.a.	n.a.	n.a.	31	35	44	62	72	106
Other sciences ² -----	n.a.	n.a.	n.a.	150	33	94	151	155	113

n.a. Not available. ¹ Excludes pay and allowance of military personnel.

² Includes operations research and research programs for which no classification was reported.

Source: National Science Foundation; annual report, *Federal Funds for Research, Development, and Other Scientific Activities* (formerly *Federal Funds for Science*).

No. 744. FEDERAL GOVERNMENT OBLIGATIONS AND EXPENDITURES FOR RESEARCH, DEVELOPMENT, AND R & D PLANT, BY AGENCY: 1956 TO 1964

[In millions of dollars. For years ending June 30. Includes Alaska and Hawaii. Includes both intramural and extramural performance. Includes social science research. Obligations differ from expenditures in any given year because not all funds are expended during the year obligated. Moreover, the expenditure data in this table differ from the Federal expenditure data in tables 741 and 742 because of the difference between Federal fiscal year reports and predominantly calendar year reporting by other sectors. See also *Historical Statistics, Colonial Times to 1957*, series W 79-94 and W 95-106.]

AGENCY	1956	1957	1958	1959	1960	1961	1962	1963 est.	1964 est.
Total obligations.....	3,269	4,391	4,908	7,121	8,078	9,606	11,066	14,472	17,001
Departments:									
Agriculture.....	84	103	113	139	129	146	166	180	186
Commerce.....	18	19	19	30	33	47	71	83	127
Defense ¹	2,431	3,250	3,480	5,287	5,825	6,688	8,817	7,727	7,965
Army.....	420	545	615	1,187	1,183	1,154	1,225	1,376	1,529
Navy.....	713	857	888	1,381	1,557	1,565	1,557	1,735	1,810
Air Force.....	1,253	1,812	1,904	2,461	2,834	3,622	3,020	4,048	3,985
ARPA ²				16	172	212	222	209	282
Health, Education, and Welfare.....	89	178	218	279	359	466	617	782	919
Interior.....	39	48	55	68	71	84	95	127	135
Atomic Energy Commission ³	505	645	829	925	988	1,063	1,316	1,532	1,494
National Aero. and Space Adm. ⁴	68	83	97	300	487	905	1,084	3,601	5,648
National Science Foundation.....	17	37	41	69	81	100	160	207	341
All other agencies.....	21	29	57	75	104	106	139	174	187
Total expenditures.....	3,446	4,462	4,990	5,803	7,738	9,278	10,373	12,226	14,979
Departments:									
Agriculture.....	88	97	112	125	131	148	156	177	188
Commerce.....	20	20	18	30	33	36	48	74	115
Defense ¹	2,639	3,371	3,664	4,183	5,654	6,618	6,812	7,107	7,672
Army.....	702	782	874	891	1,109	1,306	1,244	1,371	1,508
Navy.....	636	785	864	1,035	1,301	1,631	1,561	1,599	1,743
Air Force.....	1,279	1,780	1,894	2,135	2,978	3,441	3,073	3,700	3,815
ARPA ²				3	81	226	207	193	257
Health, Education, and Welfare.....	86	144	180	253	324	374	512	650	811
Interior.....	36	42	49	72	65	75	87	112	124
Atomic Energy Commission ³	474	657	804	877	986	1,111	1,284	1,410	1,490
National Aero. and Space Adm. ⁴	71	76	89	146	401	742	1,251	2,300	4,186
National Science Foundation.....	15	31	33	51	58	77	105	147	193
All other agencies.....	17	25	41	67	85	98	110	154	191

¹ Includes military pay and allowances and procurement funds; also includes Departmentwide funds not shown separately. ² Advanced Research Projects Agency.

³ Data represent "accrued costs" rather than obligations and expenditures, respectively.

⁴ Prior to 1958, National Advisory Committee for Aeronautics.

Source: National Science Foundation; annual report, *Federal Funds for Research, Development, and Other Scientific Activities* (formerly *Federal Funds for Science*).

No. 745. FUNDS FOR THE PERFORMANCE OF INDUSTRIAL RESEARCH AND DEVELOPMENT, BY CHARACTER OF WORK, 1957 TO 1961, AND BY SELECTED INDUSTRY, 1961

[In millions of dollars. Includes Alaska and Hawaii. Includes performance of Federal contract research centers administered by industrial firms, classified by industry of the administering company. Excludes performance by certain industry-oriented organizations, such as trade associations, that account annually for less than 1 percent of the total. Excludes funds for R&D capital and the social sciences]

YEAR AND INDUSTRY	Total	Basic research	Applied research	Development
1957.....	7,725	271	1,070	5,784
1958.....	8,363	305	1,911	6,147
1959.....	9,609	332	1,901	7,286
1960.....	10,507	388	2,029	8,089
1961				
Chemical and allied products.....	10,872	403	1,955	8,515
Petroleum refining and extraction ¹	1,078	123	303	556
Electrical equipment and communication ²	294	46	124	124
Aircraft and missiles.....	2,404	78	809	2,017
All other.....	3,957	51	401	3,505
	3,144	105	728	2,312

¹ Excludes geological and geophysical exploration activities of petroleum companies.

² These 2 industries have been combined because of the similarity of their research and development activities.

Source: National Science Foundation; annual report, *Research and Development in Industry*.

No. 746. FUNDS FOR PERFORMANCE OF TOTAL INDUSTRIAL RESEARCH AND DEVELOPMENT, BY INDUSTRY AND SOURCE OF FUNDS: 1959 TO 1962

[In millions of dollars. Includes Alaska and Hawaii. See headnote, table 745.]

INDUSTRY	TOTAL FUNDS ¹				FEDERAL FUNDS				PRIVATE INDUSTRY FUNDS			
	1959	1960	1961	1962 (prel.)	1959	1960	1961	1962 (prel.)	1959	1960	1961	1962 (prel.)
	Total	9,609	10,507	10,872	11,510	5,638	6,082	6,313	6,729	3,971	4,425	4,559
Food and kindred products	90	102	105	108	5	4	5	n.a.	84	92	101	103
Textiles and apparel	25	32	33	34	6	n.a.	n.a.	n.a.	18	n.a.	n.a.	n.a.
Lumber, wood products, and furniture	10	9	9	8	2	n.a.	n.a.	n.a.	8	56	60	65
Paper and allied products	49	56	60	65	1,151	151	162	224	257	740	803	849
Chemicals and allied products	891	986	1,073	1,151	1,151	1,151	1,151	1,151	1,151	1,151	1,151	1,151
Petroleum refining and extraction ²	276	290	294	302	25	16	19	20	251	273	275	281
Rubber products	115	120	126	126	39	37	36	31	76	83	90	94
Stone, clay, and glass products	84	96	103	117	n.a.	n.a.	n.a.	n.a.	n.a.	89	90	n.a.
Primary metals	137	160	190	166	14	17	16	14	123	143	144	152
Fabricated metal products	112	118	132	132	43	36	33	32	69	82	100	100
Machinery	927	932	996	943	413	377	292	310	514	555	604	633
Electrical equipment and communication ⁴	2,270	2,406	2,404	2,498	1,597	1,504	1,653	1,612	673	812	871	887
Motor vehicles and other transportation equipment	845	864	802	868	222	217	192	183	623	697	675	675
Aircraft and missiles	3,631	3,957	4,199	2,769	3,180	3,557	3,787	4,065	611	420	412	412
Professional and scientific instruments	3,174	3,339	3,396	3,455	166	224	176	173	194	208	151	151
Other industries ⁵	266	309	348	398	186	224	251	253	146	146	146	146

n.a. Not available.

¹ Includes basic research, applied research, and development.

² Excludes geological and geophysical exploration activities of petroleum companies.

³ Estimated.

⁴ These 2 industries have been combined because of the similarity of their research and development activities.

⁵ Includes data for all other manufacturing and nonmanufacturing industries not specifically listed and industry data specified as not available.

Source: National Science Foundation; annual report, *Research and Development in Industry*.

No. 747. PROFESSIONAL SCIENTIFIC AND TECHNICAL PERSONNEL EMPLOYED IN FEDERAL GOVERNMENT, BY PROFESSIONAL FIELD, 1958-1962, AND BY AGENCY: 1962
 [As of October. Includes Alaska and Hawaii]

YEAR AND AGENCY	Total	Physical sciences ¹	Engineering	Biological sciences	Agricultural sciences	Health ²	Other ³
ALL PERSONNEL							
1958-----	121,088	20,377	57,122	5,978	15,220	13,056	9,335
1959-----	122,859	20,990	57,808	6,132	15,314	13,402	9,213
1960-----	127,970	22,648	60,978	6,197	15,439	13,728	8,980
1961-----	134,333	42,284	45,974	6,664	15,838	14,282	9,331
1962-----	144,122	48,206	47,500	7,212	16,454	14,640	10,110
Department of Defense-----	57,452	11,290	41,470	887	146	462	3,197
Dept. of Health, Edu., and Welfare-----	7,573	2,257	877	874	18	3,096	451
Department of the Interior-----	11,896	2,618	5,467	2,067	1,150	3	582
Department of Agriculture-----	25,314	1,896	2,996	2,894	14,527	2,073	923
Department of Commerce-----	6,989	4,163	2,250	-----	1	1	574
Atomic Energy Commission-----	1,367	483	847	22	1	6	8
National Aero. and Space Adm-----	8,973	3,597	5,351	3	1	7	14
Other agencies-----	24,558	1,902	8,242	465	601	8,987	4,301
R & D PERSONNEL							
1958-----	41,827	13,481	20,780	3,068	1,372	845	2,281
1959-----	40,865	13,634	19,802	3,068	1,308	915	2,048
1960-----	43,282	14,536	21,099	3,078	1,420	1,057	2,042
1961-----	45,903	41,198	18,965	3,056	1,480	1,138	1,998
1962-----	50,843	41,917	23,502	3,574	1,532	1,308	1,950
Department of Defense-----	24,598	8,099	15,087	689	8	44	701
Dept. of Health, Ed., and Welfare-----	3,804	1,404	367	679	15	1,113	226
Department of the Interior-----	3,871	2,184	1,032	595	11	-----	69
Department of Agriculture-----	5,067	1,172	485	1,352	1,478	91	480
Department of Commerce-----	2,176	1,584	553	-----	1	1	37
Atomic Energy Commission-----	534	174	336	18	-----	5	1
National Aero. and Space Adm-----	8,571	3,535	5,018	2	4	4	12
Other agencies-----	2,222	815	624	289	10	110	415

¹ Includes mathematics and statistics group.

² Selected categories.

³ Includes selected social sciences, psychology, geography, cartography, and operations research.

⁴ Because of changes in job series classifications, not comparable with figures for 1960 and prior years.

Source: National Science Foundation; *Scientific and Technical Personnel in the Federal Government, 1962*.

No. 748. SCIENTISTS AND ENGINEERS IN PRIVATE INDUSTRY, BY INDUSTRY AND OCCUPATION: 1962

[As of January. Includes Alaska and Hawaii. Estimated to nearest hundred]

INDUSTRY	Total	Engineers	Chemists	Physicists	Metallurgists	Earth scientists	Mathematicians	Life scientists	Other scientists ¹
ALL SCIENTISTS AND ENGINEERS									
All industries-----	851,600	684,600	81,600	13,900	12,400	12,900	14,700	26,500	5,000
Ordnance and accessories-----	39,500	36,900	600	1,000	300	(2)	600	100	(2)
Chemicals and allied products-----	95,500	39,200	35,800	1,600	600	300	800	16,200	1,100
Petroleum prod. and extraction-----	37,300	23,600	3,600	200	(2)	9,300	300	300	(2)
Primary and fabricated metal products-----	57,100	45,400	4,300	200	6,400	100	400	100	(2)
Machinery-----	69,200	64,000	1,300	800	1,000	100	1,700	100	200
Communication equipment-----	55,400	50,500	600	1,900	200	(2)	1,600	(2)	600
Other electrical equipment-----	67,800	61,500	2,600	2,000	500	(2)	1,000	(2)	100
Aircraft and parts-----	83,000	74,400	1,900	1,700	1,300	200	2,400	200	900
Other transp. equip., and other mfg.	95,000	68,600	16,600	600	700	200	600	6,100	1,600
Instruments and related products-----	30,200	25,500	2,000	1,400	100	400	400	300	200
Mining, transp., and pub. util. and other nonmfg-----	135,100	120,900	7,800	300	700	1,100	3,000	1,200	200
Services-----	86,500	73,900	4,500	2,200	600	1,200	1,900	1,900	100
R & D SCIENTISTS AND ENGINEERS									
All industries-----	303,800	220,900	45,500	11,800	5,000	1,200	7,800	9,400	2,400
Ordnance and accessories-----	19,800	17,600	500	900	300	(2)	500	100	(2)
Chemicals and allied products-----	39,700	10,100	20,900	1,100	400	(2)	400	6,500	200
Petroleum prod. and extraction-----	5,300	2,700	1,600	100	(2)	600	100	200	(2)
Primary and fabricated metal products-----	12,400	8,600	1,600	200	1,700	(2)	200	(2)	(2)
Machinery-----	26,600	23,300	900	600	400	(2)	1,200	(2)	100
Communication equipment-----	33,100	29,600	400	1,800	100	(2)	900	(2)	200
Other electrical equipment-----	31,700	27,100	1,900	1,700	400	(2)	500	(2)	100
Aircraft and parts-----	50,000	44,100	1,400	1,500	900	(2)	1,800	200	200
Other transp. equip., and other mfg.	33,400	39,19,600	9,800	600	200	(2)	300	1,300	1,500
Instruments and related products-----	15,100	11,900	1,400	1,200	100	(2)	300	100	(2)
Mining, transp., and pub. util. and other nonmfg-----	7,100	4,800	1,600	(2)	100	100	300	100	(2)
Services-----	29,500	21,500	3,400	2,100	400	300	1,400	400	100

¹ Excludes psychologists and social scientists.

² Less than 50.

Source: National Science Foundation; *Scientific and Technical Personnel in Industry, 1962*. Data from Dept. of Labor, Bureau of Labor Statistics.

No. 749. SCIENTIFIC AND TECHNICAL PERSONNEL—STATES: 1962

[The National Register of Scientific and Technical Personnel is a voluntary register of scientists in the U.S.; it does not include all scientists in the U.S., nor does it currently include engineers]

STATE OR OTHER AREA	Total	SCIENTIFIC AND TECHNICAL FIELD							
		Agricultural sciences	Biological sciences	Psychology	Earth sciences	Mathematics and statistics	Physics and astronomy	Chemistry	Other
									38,058
Total.....	214,940	12,389	25,554	16,791	24,104	18,189	25,725	54,130	38,058
Alabama.....	1,784	281	183	97	90	155	209	456	363
Alaska.....	516	144	47	4	189	20	9	19	84
Arizona.....	1,463	213	181	113	271	129	166	154	236
Arkansas.....	800	194	115	52	108	34	39	138	120
California.....	25,526	1,097	2,593	2,238	2,692	2,936	4,552	4,542	4,876
Colorado.....	3,766	339	322	222	1,287	210	373	391	622
Connecticut.....	3,997	92	440	355	168	387	591	1,299	665
Delaware.....	2,327	23	108	75	30	65	97	1,470	459
District of Columbia.....	6,512	262	704	501	1,083	883	1,131	912	1,136
Florida.....	3,449	318	581	353	440	267	342	547	601
Georgia.....	2,090	372	413	156	160	187	120	379	324
Hawaii.....	634	55	120	55	121	42	24	77	140
Idaho.....	872	336	91	15	73	37	73	104	143
Illinois.....	10,790	248	1,565	947	668	846	1,107	3,521	1,888
Indiana.....	4,225	161	669	371	246	360	397	1,346	675
Iowa.....	2,051	169	438	219	113	198	196	418	300
Kansas.....	2,011	106	312	206	411	184	159	367	286
Kentucky.....	1,444	105	215	123	163	85	104	381	268
Louisiana.....	3,234	286	345	102	1,084	182	96	644	525
Maine.....	655	118	100	63	61	44	38	115	96
Maryland.....	6,568	214	1,540	374	438	707	972	1,355	878
Massachusetts.....	8,694	116	1,025	742	553	931	1,810	2,229	1,288
Michigan.....	7,143	441	970	681	403	537	713	2,119	1,279
Minnesota.....	3,614	324	531	378	191	344	369	1,009	468
Mississippi.....	1,065	211	144	49	291	38	42	127	163
Missouri.....	3,888	201	463	256	360	261	269	1,075	1,003
Montana.....	940	337	111	22	252	35	16	62	105
Nebraska.....	1,109	132	168	112	188	127	82	138	162
Nevada.....	440	90	28	24	98	27	41	54	78
New Hampshire.....	584	87	118	24	58	53	67	108	69
New Jersey.....	11,549	131	791	734	286	877	1,483	5,292	1,955
New Mexico.....	2,200	181	100	66	470	250	558	292	274
New York.....	23,496	381	2,935	2,849	1,039	2,438	3,322	6,221	4,311
North Carolina.....	2,740	337	518	203	181	227	189	712	373
North Dakota.....	495	97	70	36	112	37	14	68	61
Ohio.....	9,816	205	911	833	477	691	1,056	3,577	2,006
Oklahoma.....	8,147	120	231	113	1,198	177	155	597	556
Oregon.....	2,488	835	309	155	218	100	142	281	398
Pennsylvania.....	12,517	331	1,461	977	563	889	1,588	4,301	2,407
Rhode Island.....	708	24	89	65	51	63	139	226	111
South Carolina.....	1,117	190	116	47	63	56	95	320	230
South Dakota.....	482	141	69	17	55	40	25	68	72
Tennessee.....	2,976	190	375	156	148	191	356	959	601
Texas.....	11,000	404	773	493	3,885	566	761	2,020	2,098
Utah.....	1,663	230	219	88	359	114	121	252	280
Vermont.....	315	49	61	27	21	27	27	59	44
Virginia.....	3,389	243	355	218	306	316	415	810	726
Washington.....	3,857	546	479	273	396	338	419	656	750
West Virginia.....	1,479	107	113	55	75	49	48	655	377
Wisconsin.....	3,561	352	596	291	216	311	349	913	533
Wyoming.....	770	159	41	26	353	10	15	77	89
Foreign.....	2,994	114	293	140	1,392	151	235	228	446

Source: National Science Foundation; *American Science Manpower, 1962*. Data derived from the National Register of Scientific and Technical Personnel.

No. 750. SCIENCE DOCTORATES CONFERRED, BY FIELD OF SCIENCE: 1957 TO 1963

FIELD OF SCIENCE	1957	1958	1959	1960	1961	1962	1963 (prel.)
Total	5,993	6,128	6,536	6,908	7,439	8,266	9,200
Life sciences	1,634	1,585	1,627	1,776	1,802	2,051	2,220
Agricultural and related	275	255	296	346	353	413	440
Medical sciences	97	78	95	84	99	109	110
Anatomy, cytology, physiology, and embryology	268	272	307	235	272	341	380
Botany	191	157	164	196	188	202	220
Biochemistry	237	231	208	272	285	289	320
Microbiology	181	202	168	179	181	198	210
Zoology	233	228	220	276	261	300	330
Miscellaneous biological sciences	152	162	169	188	163	199	210
Physical sciences	2,535	2,558	2,846	3,044	3,367	3,890	4,470
Mathematics	256	238	301	290	362	410	460
Physics	462	504	523	574	602	765	900
Chemistry	1,042	959	1,077	1,105	1,139	1,182	1,240
Geo-sciences	185	199	235	250	258	252	270
Engineering	590	658	710	825	1,006	1,281	1,600
Social sciences	1,824	1,985	2,063	2,088	2,270	2,325	2,510
Psychology	723	780	809	762	870	878	940
Sociology	117	174	183	156	183	195	210
Economics	304	322	338	375	434	407	440
History	339	314	351	365	362	389	420
Political science	202	226	230	251	264	266	280
Anthropology and archaeology	65	73	67	75	59	84	100
Miscellaneous social sciences	74	96	85	104	98	111	120

Source: National Science Foundation. Data from National Research Council; *Doctorate Production in United States Universities, 1920-1962*, and unpublished data.

No. 751. PATENTS AND TRADEMARKS: 1941 TO 1963

[For years ending December 31. Covers patents issued to citizens of United States and residents of foreign countries. For information on copyrights, see table 722. See also *Historical Statistics, Colonial Times to 1957*, series W 66-75 and W 77-78.]

ITEM	1941-45	1946-50	1951-55	1956-60	1955	1960	1961	1962	1963
Patent applications filed	294,273	400,342	379,053	410,389	83,266	84,475	88,151	90,360	91,091
Inventions	265,417	360,095	351,649	384,782	77,188	79,590	83,100	85,029	85,724
Designs	27,536	39,127	25,951	23,865	5,764	4,525	4,714	4,897	4,908
Botanical plants	262	398	467	584	118	131	107	151	145
Reissues	1,058	722	986	1,158	196	229	230	283	254
Patents issued¹	184,492	163,034	208,964	251,872	33,434	49,986	51,152	58,284	48,970
Inventions ²	164,360	144,076	192,651	237,469	30,432	47,170	48,368	55,691	45,679
Individuals	61,127	58,957	78,459	76,589	11,915	13,069	13,383	15,470	12,525
Corporations:									
United States	95,107	78,376	100,278	133,948	16,084	28,187	28,351	32,560	26,632
Foreign	5,147	4,669	10,537	21,043	1,744	4,670	5,161	6,380	5,501
U.S. Government ³	346	1,761	3,369	5,889	689	1,244	1,473	1,281	1,021
Designs	18,880	18,016	15,084	13,024	2,713	2,543	2,487	2,300	2,905
Botanical plants	229	334	441	567	103	116	108	91	129
Reissues	1,023	608	788	812	186	157	189	202	197
Certificates of trademarks issued¹	52,191	85,611	100,942	108,246	22,480	22,367	19,953	19,832	22,395
Trademarks	34,435	61,339	83,311	90,727	18,212	18,434	16,595	17,023	19,740
Trademark renewals	17,756	24,272	17,631	17,519	4,268	3,933	3,358	2,809	2,655

¹ Excludes all registration numbers left blank due to withdrawal of patent or trademark before issue.

² Since 1942, includes patents issued to the Alien Property Custodian.

³ Excludes patents issued to the Alien Property Custodian.

Source: Dept. of Commerce, Patent Office; unpublished data. Fiscal-year figures are published in the *Annual Report of the Commissioner of Patents*.

No. 752. ATOMIC ENERGY COMMISSION—LICENSES, AGREEMENTS: 1950 TO 1963

ITEM	1950	1955	1959	1960	1961	1962	1963
Licenses in effect:							
Power reactors:							
Construction permits and authorizations			3	11	11	5	4
Licenses to operate and operating authorizations			2	3	4	11	13
Research reactors:							
Construction permits		4	16	17	15	10	9
Licenses to operate		2	39	45	54	61	65
Test reactors:							
Construction permits			1	1			2
Licenses to operate			2	2	3	3	3
Critical experiment facilities:							
Construction permits		2	1	1	1	1	2
Licenses to operate			13	14	14	15	15
Production facilities: Construction permits					1		1
Operator licenses (includes senior operator licenses) ¹		3	465	503	689	887	1,295
Licenses to possess special nuclear materials ²		7	294	362	459	454	511
Licenses to possess source materials ²	647	1,768	1,345	1,153	569	460	499
Licenses to export reactors issued			12	3	4	4	1
Source material export licenses issued	n.a.	715	721	696	228	126	127
Organizations with byproduct (radioisotope) licenses ³	614	3,016	5,505	5,940	6,595	5,881	5,889
Medical institutions and physicians	206	1,173	2,286	2,508	2,807	2,278	2,184
Industrial concerns	206	1,266	1,623	1,817	1,997	1,783	1,825
Colleges and universities	123	227	283	297	343	314	307
Federal and State laboratories	49	253	1,170	1,153	1,329	1,416	1,487
Foundations and institutions	29	57	52	55	59	47	47
Other	1	35	82	50	60	43	39
Access permits in effect		602	1,268	1,008	823	688	596
Agreements in effect for foreign cooperation		22	44	41	38	36	37
Power agreements		3	13	14	14	14	15
Research agreements		19	31	27	24	22	22

¹n.a. Not available.²Beginning 1963, each reactor licensee was required to have available a "senior" reactor operator.³Beginning 1962, State governments began to take over a part of materials licensing under agreements with the AEC. As of Nov. 30, 1963, 6 States had issued a total of 2,683 materials licenses not shown in the above figures.³Beginning 1959, includes only parent organizations, which are issued single basic licenses. Subordinate organizations at various locations included for prior years.Source: Atomic Energy Commission; *Semiannual Report, Annual Report*, and unpublished data.No. 753. ATOMIC ENERGY COMMISSION—FINANCES AND EMPLOYMENT: 1950 TO 1963
[Money figures in millions of dollars. For years ending June 30]

ITEM	1950	1955	1959	1960	1961	1962	1963
Appropriations received	703	1,210	2,635	2,650	2,667	2,547	3,135
Operations	n.a.	1,099	2,385	2,387	2,450	2,352	2,872
Plant equipment	n.a.	111	250	263	211	195	263
Plant investment, year end	2,104	6,487	7,293	7,345	7,665	7,869	8,233
Completed plant	1,809	5,858	7,043	7,018	7,202	7,365	7,652
Production plants	1,251	4,646	5,553	5,458	5,454	5,345	5,448
Research facilities	184	707	1,125	1,271	1,434	1,714	1,884
Communities	262	299	178	86	78	77	79
Other	112	206	187	203	236	229	239
Construction in progress	295	629	250	327	403	504	582
Cost of operations ¹	415	1,290	2,497	2,619	2,613	2,696	2,713
Procurement of raw materials	30	194	700	717	637	537	478
Production of nuclear materials	130	688	713	731	733	680	652
Weapons development and fabrication	112	259	492	505	512	706	697
Development of nuclear reactors	31	115	356	399	437	433	507
Civilian	1	22	78	100	102	94	88
Military	9	53	161	187	201	130	145
Power for space			22	27	47	96	145
Other	21	40	75	85	87	113	128
Physical research	20	48	112	133	164	172	199
Fusion power		5	28	32	30	25	26
High energy physics	5	9	28	32	48	59	73
Other	24	35	57	68	76	88	99
Biology and medicine research	18	29	43	49	54	63	71
Community operations (net)	20	10	10	7	4	4	5
Administrative expenses	23	34	50	51	58	61	67
Other expenses and income (net)	13	13	21	27	24	31	38
Employment	63,739	112,618	121,928	122,718	122,989	126,623	135,278
Federal Government	4,941	6,076	6,855	6,907	6,840	6,863	7,120
Contractor operating	39,095	82,936	105,195	104,812	103,313	106,394	115,012
Contractor construction and design	19,703	23,606	9,878	11,199	12,830	13,366	13,146
Contractors: ²							
Operating contractors	34	64	94	91	97	81	74
Construction and design contractors	28	18	34	39	29	20	36

¹n.a. Not available. ¹Includes depreciation.²Represents those whose employment plus first-tier subcontractor employment totals 50 or more; operating contractors comprise those engaged in production, research and development, maintenance, and service; excludes supply contractors.Source: Atomic Energy Commission; *Financial Report*.

No. 754. ATOMIC ENERGY COMMISSION—NUCLEAR REACTOR DEVELOPMENT COSTS AND ELECTRICAL GENERATION: 1950 TO 1963
 [Costs in millions of dollars]

ITEM	1950	1955	1959	1960	1961	1962	1963
Reactor development costs ¹			355.6	399.3	437.3	433.2	507.3
Civilian power reactors			78.4	100.0	102.3	94.3	85.1
Pressurized light water			26.1	22.1	26.2	26.2	23.4
Boiling light water			5.9	10.5	11.9	10.1	8.2
Heavy water			5.5	10.1	9.3	10.0	8.4
Organic moderated			6.1	8.4	8.2	10.2	7.7
Gas cooled			9.5	19.0	21.4	12.5	12.0
Sodium cooled			24.3	27.5	22.2	23.6	26.3
Other			1.0	2.4	3.1	1.7	2.1
Military reactors			180.6	186.8	201.2	129.7	145.7
Naval propulsion			90.6	88.8	93.5	95.4	108.9
Army power			9.4	12.0	13.5	12.8	11.5
Missile propulsion			8.8	16.3	23.1	21.5	25.3
Aircrafts propulsion			71.8	69.7	71.1	(2)	(2)
Space propulsion			14.0	15.4	25.1	42.5	60.7
Merchant ship reactors			2.4	4.2	5.4	9.0	7.5
Auxiliary power sources			7.7	11.5	21.3	53.6	75.2
General			72.5	81.4	82.0	104.1	121.1
Nuclear reactors in U.S.:							
Civilian reactors:							
Electric power prototypes			2	3	3	7	11
Experimental electric power		2	7	7	8	10	9
Propulsion prototypes and experiments			1	1	1	1	1
General irradiation test			1	4	2	5	4
Research	9	11	31	35	40	44	60
Teaching			29	39	37	38	41
Military reactors:							
Electric power			3	5	6	7	6
Naval propulsion		1	11	15	37	41	47
Other propulsion prototypes and experiments		2	7	8	8	6	6
Test and research		4	6	7	11	11	10
Production reactors:							
Material production	5	13	13	13	13	13	14
Production process development and test	1	5	5	5	6	6	6
Electrical generation:							
Capacity	not electrical megawatts		4	257	367	399	849
Gross output	1,000 megawatt hours		1	234	591	1,844	2,471
	1 For years ending June 30.	2 Program discontinued.					

Source: Atomic Energy Commission; *Annual Report*, and unpublished data.

No. 755. URANIUM, RADIOISOTOPES, AND HEAVY WATER—SELECTED DATA: 1950 TO 1963

[For years ending June 30, except as noted]

ITEM	1950	1955	1959	1960	1961	1962	1963
URANIUM							
AEC procurement:							
Quantity	tons of U ₃ O ₈	3,060	5,940	33,326	34,582	32,260	29,362
Domestic sources	tons of U ₃ O ₈	320	2,141	15,162	10,567	17,758	17,265
Canadian sources	tons of U ₃ O ₈	235	828	13,506	13,443	10,251	7,728
Overseas sources	tons of U ₃ O ₈	2,505	2,971	4,658	4,572	4,251	4,379
Cost	mil. dol.	29	141	689	704	627	537
Domestic sources	mil. dol.	6	54	285	298	303	283
Canadian sources	mil. dol.	7	26	294	296	224	154
Overseas sources	mil. dol.	16	61	110	110	100	95
Estimated ore reserves ¹	tons contained U ₃ O ₈	5,000	68,000	241,000	238,000	217,000	167,000
Rated ore milling capacity ¹	tons per day	650	7,000	22,000	22,000	22,500	21,000
RADIOISOTOPES ²							
Sales by ORNL ¹	\$1,000	773	1,692	2,498	2,209	1,803	1,311
Exports ¹	\$1,000	n.a.	1,288	1,283	1,286	1,741	1,895
Imports ¹	\$1,000	6	189	1,145	1,394	1,509	1,732
HEAVY WATER							
Sales by AEC	tons			59	86	99	78
Value	\$1,000			3,327	4,867	5,560	4,533

n.a. Not available. ¹ As of December.

² The Oak Ridge National Laboratory is the AEC's principal distributor of radioisotopes. Sales are made also by other AEC laboratories, and by commercial suppliers. Sales figures include AEC sales made to commercial suppliers but not by them, and also sales by ORNL to other AEC organizations. Shipments to foreign countries are comprised of shipments made by AEC laboratories and by commercial suppliers.

Source: Atomic Energy Commission; *Semiannual Report*, *Annual Report*, and unpublished data.

No. 756. ATOMIC ENERGY COMMISSION—COSTS OF CONDUCT OF RESEARCH AND DEVELOPMENT AND OF NUCLEAR TRAINING PROGRAMS: 1959 TO 1963
 [In thousands of dollars. For years ending June 30]

ITEM	1959	1960	1961	1962	1963
Total AEC expenditures¹	699,756	761,657	850,157	1,029,195	1,077,942
AEC contract research centers	500,103	547,557	593,812	627,713	675,712
Profit organizations	150,470	157,661	184,342	324,361	316,558
Educational institutions	28,979	33,573	42,703	46,419	57,724
Nonprofit institutions	6,127	9,376	7,050	7,788	10,383
Other	14,077	13,491	22,250	22,914	17,565
Physical and life sciences¹	143,543	166,825	192,674	217,882	247,940
AEC contract research centers	95,416	111,536	128,119	146,214	169,082
Profit organizations	6,607	6,565	5,867	7,899	8,253
Educational institutions	28,129	31,935	40,970	44,137	55,128
Nonprofit institutions	4,322	6,714	5,633	6,482	5,905
Other	9,069	10,075	12,085	13,150	9,572
Reactor development¹	325,843	361,748	399,818	396,683	462,427
AEC contract research centers	237,039	251,049	271,271	245,192	270,804
Profit organizations	82,486	104,635	116,988	139,745	178,453
Educational institutions	800	1,013	1,351	1,619	1,731
Nonprofit institutions	1,708	2,334	932	828	4,156
Other	4,001	2,697	9,276	9,299	7,283
Isotopes development¹	1,959	3,364	3,644	5,151	6,143
AEC contract research centers	487	900	1,124	1,562	3,073
Profit organizations	1,172	1,406	1,611	2,224	1,590
Educational institutions	203	625	316	663	865
Nonprofit institutions	97	307	485	478	322
Other	0	126	108	224	298
All other research and development	228,411	229,720	254,021	409,479	361,432
Education and training assistance¹	7,587	7,675	8,887	8,637	8,630
Grants for equipment purchase	3,894	3,076	3,521	2,400	1,620
Training at AEC nuclear schools	2,340	2,942	3,559	4,484	4,704
Other costs	1,358	1,657	1,787	1,753	2,306

¹ Includes operating costs only. ² Includes depreciation and other nonfund costs.

Source: Atomic Energy Commission; *Financial Report*, and unpublished data.

No. 757. VALUE OF SPECIAL NUCLEAR MATERIAL IN REACTOR CORES SUPPLIED BY UNITED STATES FOR POWER REACTOR APPLICATION: 1950 TO 1963

[In millions of dollars. As of December 31, for operable reactors]

ITEM	1950	1955	1959	1960	1961	1962	1963
Total	0	0	8.1	16.1	20.0	57.0	76.7
United States power reactors	0	0	8.1	14.3	17.2	52.9	64.8
Atomic Energy Commission	0	0	3.2	3.2	6.1	26.4	28.7
Commercial	0	0	4.9	11.1	11.1	26.5	36.1
Foreign power reactors	0	0	0	1.8	2.8	4.1	11.9

Source: Atomic Energy Commission; unpublished data.

No. 758. EMPLOYMENT IN THE ATOMIC ENERGY FIELD, BY OCCUPATION AND SEGMENT: 1963

[Based on a survey of the atomic energy employment in establishments covering about four-fifths of all workers in the atomic energy field. Excludes persons in uranium mining, in non-AEC owned facilities of educational institutions, and in nuclear facilities construction]

SEGMENT	Total	Engineers	Scientists	Technicians	All other
All activities	134,784	19,557	10,600	21,541	83,086
Commission laboratory and research facilities	44,505	7,329	6,271	10,449	20,456
Atomic energy defense production facilities	40,063	3,577	1,549	3,551	31,986
Reactor and reactor component design and manufacturing	14,279	4,271	1,099	2,777	6,132
Production of feed materials	8,854	624	518	662	7,050
Nuclear instrument manufacturing	4,745	833	199	834	2,879
Design and engineering of nuclear facilities	3,599	715	45	385	2,454
Uranium milling	2,579	150	48	120	2,261
Fuel element fabrication and recovery activities	1,819	174	35	430	1,180
Production of special materials for use in reactors	1,507	234	87	349	837
Particle accelerator manufacturing	1,238	265	70	351	552
Private research laboratories	1,234	232	358	312	332
Power reactor operation and maintenance	1,091	230	28	268	570
Industrial radiographic services	436	34	4	372	26
Processing and packaging of radioisotopes	365	25	102	102	136
Radioactive waste disposal	86	15	—	42	29
Miscellaneous	7,784	849	187	542	6,206

Source: Dept. of Labor, Bureau of Labor Statistics; unpublished data.

No. 759. SHIPMENTS OF ATOMIC ENERGY EQUIPMENT AND PRODUCTS: 1960 AND 1962

[In thousands of dollars. Includes Alaska and Hawaii. Excludes construction expenditures, engineering and design costs, research and development expenditures, and products used in atomic energy work which are not uniquely designed for nuclear applications]

ITEM	1960			1962		
	Total	U.S. Govern- ment agencies	Other, in- cluding export	Total	U.S. Govern- ment agencies	Other, in- cluding export
Total	287,570			263,764		
Nuclear reactors	12,389	(1)	(1)	7,884	6,469	1,415
Reactor components and equipment:						
Primary vessels and tanks	11,873	10,064	1,809	12,139	10,772	1,367
Control rod drive mechanisms and components	16,688	13,322	3,366	17,996	12,811	5,185
Accessory instrumentation for reactor control	17,746	11,515	6,231	14,211	9,074	5,137
Heat exchangers and condensers	19,019	11,932	7,087	16,718	13,118	3,600
Pressurizers, components, and auxiliary equipment	2,034	(1)	(1)	2,585	2,289	296
Pumps	21,300	(1)	(1)	17,876	14,883	3,403
Valves	8,319	6,977	1,342	13,015	11,703	1,312
Fuel handling equipment	1,950	1,011	939	1,715	769	946
Complete reactor fuel elements and control rods shipped directly for installation or use in a reactor	81,165	73,900	7,256	38,966	27,804	11,162
Partially fabricated reactor fuel element materials and control rods not shipped directly for installation or use in a reactor	14,335	11,116	3,219	15,908	10,547	5,361
Core structurals (barrels, cans, boxes, plates, etc., not included above)	4,067	3,516	551	2,256	1,808	358
Reactor moderators, coolants, and reflectors	3,278	1,669	1,600	1,312	635	677
Other specialized reactor components and equipment	5,492	3,556	1,936	10,089	5,755	4,334
Hot laboratory equipment	4,158	2,772	1,386	2,585	1,513	1,072
Shielding	5,704	3,066	2,638	6,106	2,569	3,597
Radiation detection and monitoring devices:						
Radiation survey monitoring and control devices	31,156	11,781	19,375	52,058	21,744	30,314
Radiation counting equipment						
Radioactive isotopes shipped from plants producing isotopes	976	55	921	2,071	217	1,854
Radiation sources and other radioactive materials produced from purchased isotopes	4,158	652	3,506	6,078	674	5,404
Control and measuring devices containing radioactive isotopes	10,391	2,860	7,531	9,652	1,526	8,126
Commercial irradiation service						
Conversion of enriched uranium metal and compounds (excluding production or conversion of normal and depleted uranium)	11,282	5,923	5,359	8,900	7,287	1,663
				3,584	971	2,613

¹ Withheld to avoid disclosing figures for individual companies.

Source: Dept. of Commerce, Bureau of the Census; *Current Industrial Reports*, Series M38Q(62)-1.

No. 760. SPACE ACTIVITIES OF THE FEDERAL GOVERNMENT—EXPENDITURES, BY AGENCY: 1956 TO 1965

[In millions of dollars. For years ending June 30]

AGENCY	1956	1957	1958	1959	1960	1961	1962	1963	1964 est.	1965 est.
Total	100	150	249	521	960	1,468	2,390	4,077	6,176	6,731
National Aeronautics and Space Adm. ¹	71	76	89	146	401	694	1,229	2,515	4,355	4,930
Department of Defense	17	48	136	341	518	710	1,029	1,368	1,583	1,548
Atomic Energy Commission	6	19	20	33	41	64	130	181	218	220
Weather Bureau										
National Science Foundation	6	7	4	2			1	12	19	22
							1	1	2	2

¹ Beginning 1961, excludes amounts for aircraft technology.

Source: U.S. President, *Message . . . Transmitting Report on This Nation's Aeronautics and Space Activities for the Calendar Year 1965* . . . 88th Congress, 2d session, House Document No. 207.

Space Programs—Space Flights

551

No. 761. SPACE PROGRAMS—EXPENDITURES OF THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION FOR RESEARCH AND DEVELOPMENT: 1961 TO 1965

[In millions of dollars. For years ending June 30. Covers activities aimed to develop new knowledge or apply existing knowledge to new uses. Generally excludes expenditures for routine testing, experimental production, and information and training programs. Expenditures for facilities cover land, buildings, and major equipment.]

PROGRAM	PERFORMANCE					FACILITIES				
	1961	1962	1963	1964 est.	1965 est.	1961	1962	1963	1964 est.	1965 est.
Total.....	646	1,143	2,327	3,925	4,470	98	114	225	475	520
Manned space flight.....	232	467	1,374	2,567	2,991	6	80	160	331	379
Space applications.....	15	61	90	104	96	1	1	1	1	1
Unmanned investigations.....	208	323	460	605	642	8	14	24	40	28
Space technology.....	123	183	247	372	402	19	13	26	72	52
Aircraft technology.....	36	28	37	45	50	15	15	15	1	1
Supporting operations.....	33	81	120	232	290	50	7	16	31	58

Source: Executive Office of the President, Bureau of the Budget; unpublished data.

No. 762. ORBITAL MANNED SPACECRAFT: 1961 THROUGH JUNE 1964

[Includes all U.S. and known U.S.S.R. launchings]

CHARACTERISTICS OF VEHICLE	U.S.				U.S.S.R. ¹					
	Mercury- Atlas VI	Mercury- Atlas VII	Mercury- Atlas VIII	Mercury- Atlas IX	Vostock (Space- craft VI)	Vostock II	Vostock III	Vostock IV	Vostock V	Vostock VI
Astronaut.....	Glenn	Car- penter	Schirra	Cooper	Ga- rin 4-12-61	Titov	Nikolayev 8-11-62	Popo- vich 8-12-62	Bykov- sky 6-12-63	Teresh- kova 6-14-63
Launching date.....	2-20-62	5-24-62	10-3-62	5-15-63	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Vehicle lift-off weight, lb.....	260,000	260,000	260,000	260,000	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Vehicle dimensions ² , ft.....	93H- 16D	93H- 16D	93H- 16D	93H- 16D	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Payload dimensions ² , ft.....	9.5H- 6D	9.5H- 6D	9.5H- 6D	9.6H- 6D	20H	20H- 12-14D	n.a.	n.a.	n.a.	n.a.
Payload weight.....lb.....	3 2,900	3 2,975	3 3,030	3 3,000	10,418	10,430	10,000	10,000	10,000	10,000
Maximum velocity, mph.....	4 17,545	17,546	17,550	4 17,500	17,000	17,750	n.a.	n.a.	n.a.	n.a.
Perigee.....miles.....	97.6	100	100	100	108.8	110.3	107.4	111	99	108
Apogee.....miles.....	189.5	166.8	176	166.1	187.7	115.3	137.2	158	120	135
Orbits.....number.....	3	3	6	22	1	17.5	64+	48+	81	48
Lifetime.....hrs:min.....	4:56	4:56	9:13	34:20	1:48	25:18	94:25	70:50	119:04	70:50

n.a. Not available.

¹ Unofficial data from U.S. and Soviet press and radio.

² H=height; D=diameter.

³ Weight in orbit. Lift-off (in pounds), 4,100, 4,224, 4,325, and 4,000, respectively; recovery (in pounds), 2,400, 2,480, 2,440, and 2,460, respectively.

⁴ Average.

Source: National Aeronautics and Space Administration; *Space Activities Summary*, various dates.

No. 763. SPACE VEHICLES IN EARTH ORBIT: 1964

[Reflects selected data computed and compiled by the Goddard Space Flight Center, North American Air Defense Command (NORAD), and Smithsonian Astrophysical Observatory as of April 1, 1964]

COUNTRY OF LAUNCHING AND VEHICLE	Launching date	Approximate weight (pounds)	Perigee (miles)	Apogee (miles)	Orbital period (minutes)
U.S. LAUNCHINGS					
Explorer 1	Feb. 1, 1958	31	214	1,001	104.7
Vanguard 1	Mar. 17, 1958	3	391	2,460	134.0
Vanguard 2	Feb. 17, 1959	22	347	2,041	125.4
Vanguard 3	Sept. 18, 1959	100	316	2,312	129.8
Explorer 7	Oct. 13, 1959	92	342	668	101.2
Tiros 1	Apr. 1, 1960	270	437	457	99.2
Transit 1B	Apr. 13, 1960	265	215	368	94.0
Midas 2	May 24, 1960	5,000	289	312	94.3
Transit 2A 1	June 22, 1960	223	382	657	101.6
Greb 1	June 22, 1960	42	382	656	101.6
Echo 1	Aug. 12, 1960	240	762	1,027	114.7
Courier 1B	Oct. 4, 1960	500	598	753	107.0
Explorer 8	Nov. 3, 1960	90	263	1,394	112.3
Tiros 2	Nov. 23, 1960	280	388	450	98.2
Samos 2	Jan. 31, 1961	4,100	292	337	94.7
Explorer 10	Mar. 25, 1961	79	n.a.	n.a.	n.a.
Explorer 11	Apr. 27, 1961	82	3,414	1,098	108.0
Transit 4A 2	June 29, 1961	175	547	620	103.8
Injun-SR-3 2	June 29, 1961	95	547	621	103.8
Tiros 3	July 12, 1961	285	459	507	100.4
Midas 3	July 12, 1961	3,500	2,068	2,214	161.5
Explorer 12	Aug. 16, 1961	83	n.a.	n.a.	n.a.
Midas 4	Oct. 21, 1961	3,500	2,188	2,318	166.0
Transit 4B 1	Nov. 15, 1961	200	580	700	105.8
Trac 1	Nov. 15, 1961	200	597	684	105.8
Tiros 4	Feb. 8, 1962	235	444	521	100.4
Orbiting Solar Observatory 1	Mar. 7, 1962	440	343	362	96.0
Ariel 1 3	Apr. 26, 1962	132	240	736	100.6
Tiros 5	June 19, 1962	286	365	606	100.5
Telstar 1	July 10, 1962	170	590	3,503	157.8
Tiros 6	Sept. 18, 1962	281	421	447	98.7
Alouette 4	Sept. 29, 1962	320	618	646	105.5
Explorer 14	Oct. 2, 1962	89	n.a.	n.a.	n.a.
Explorer 15	Oct. 27, 1962	100	191	10,842	312.6
Anna 1B	Oct. 31, 1962	355	674	729	107.0
Injun 3	Dec. 13, 1962	n.a.	146	1,570	113.4
Relay 1	Dec. 13, 1962	172	816	4,626	185.1
Explorer 16	Dec. 16, 1962	222	460	738	104.4
Transit 5A	Dec. 19, 1962	185	437	453	99.1
Syncom 1	Feb. 14, 1963	86	n.a.	n.a.	n.a.
Explorer 17	Apr. 3, 1963	405	162	501	93.4
Telstar 2	May 7, 1963	175	605	6,710	225.3
Tiros 7	June 19, 1963	297	388	402	97.4
Research Satellite for Geophysics	June 28, 1963	n.a.	257	808	102.1
Syncom 2	July 26, 1963	86	22,113	22,344	1,435.4
Explorer 18	Nov. 27, 1963	138	1,090	120,628	5,558.7
Centaur 1	Nov. 27, 1963	10,200	293	1,105	107.8
Explorer 19	Dec. 10, 1963	95	373	1,478	115.7
Tiros 8	Dec. 21, 1963	265	441	464	99.4
GGSE	Jan. 11, 1964	70	557	589	103.4
EGRS	Jan. 11, 1964	40	567	580	103.4
Solar Radiation	Jan. 11, 1964	70	567	580	103.5
Relay 2	Jan. 21, 1964	172	1,299	4,604	194.7
Echo 2	Jan. 25, 1964	781	617	842	108.8
Saturn 5	Jan. 29, 1964	37,700	161	452	94.5
Ariel 2 3	Mar. 27, 1964	n.a.	182	838	101.3
U.S.S.R. LAUNCHINGS					
Polyot 1	Nov. 1, 1963	n.a.	214	870	102.4
Elektron 1	Jan. 30, 1964	n.a.	251	4,423	169.3
Elektron 2	Jan. 30, 1964	n.a.	278	42,239	1,356.4
Cosmos 25	Feb. 27, 1964	n.a.	162	306	92.1
Cosmos 26	Mar. 18, 1964	n.a.	167	235	91.0

n.a. Not available. ¹ Two satellites launched at once.

² Three satellites launched at once. Payloads Injun and SR-3 failed to separate.

³ Launched by NASA and British National Committee for Space Research.

⁴ Launched by NASA and Canadian Defense Research Board.

⁵ Source: U.S. President, *Message . . . Transmitting Report on This Nation's Aeronautics and Space Activities for the Calendar Year 1962* . . . 88th Congress, 1st Session, House Document No. 52.

Source: National Aeronautics and Space Administration; *Satellite Situation Report*, April 1, 1964, and *Space Activities Summary*, various dates, except as noted.

Section 21

Transportation—Land

This section presents statistics relating to the mileage, control, and financing of public roads and to the transportation of persons and goods by land. The modes of transport included are passenger car, truck, railroad, bus and streetcar, and pipeline.

The principal compiler of data on public roads and motor-vehicle registrations is the Bureau of Public Roads of the Department of Commerce which, since 1945, has issued the annual *Highway Statistics*. Its *Highway Statistics, Summary to 1955*, presents public roads data carried back for 20 to 50 years. The principal sources of land transport data, other than for public roads and motor-vehicle registrations, are the Interstate Commerce Commission's *Annual Report* and its annual *Transport Statistics in the United States*, Part 1, which contains data on railroads. Other important publications of the Interstate Commerce Commission in the field of land transport include the quarterly and annual *Statistics of Class I Motor Carriers* (issued as Part 7 of *Transport Statistics*); the annual *Statistics of Oil Pipe-Line Companies* (issued as Part 6 of *Transport Statistics*); the annual *Accident Bulletin*, and, for historical data on railroads, *Statistics of Railways in the United States*, published annually from 1887 through 1953.

Additional governmental sources are the Agriculture Department's Bulletin 1279, *Rural Highway Mileage, Income, and Expenditures, 1921-22*, which contains data for the 1904, 1909, 1914, and 1921 road mileage surveys; and the *Census of Manufactures* and the *Annual Survey of Manufactures* of the Bureau of the Census, which contain statistics on the motor-vehicle and equipment industry. Data from these Bureau of the Census reports are also included in section 29, Manufactures, of this volume. Nongovernmental data can be found in *Cars of Revenue Freight Loaded*, published weekly and annually by the Association of American Railroads; and in the *Transit Fact Book*, containing street railway and motor bus statistics, published annually by the American Transit Association. Useful annual handbooks in the field of motor-vehicle transport are *Automobile Facts and Figures* and *Motor Truck Facts*, both issued by the Automobile Manufacturers Association of Detroit, Mich.; and *Accident Facts*, issued by the National Safety Council of Chicago, Ill.

Rural and urban roads.—The terms "rural," "urban," and "municipal" are used in different ways in different tables in this section. Because of special problems and purposes, it is not possible to apply identical definitions and groupings to all types of data. Definitions are given in table headnotes where pertinent.

Highway systems.—The Federal-Aid Highway Act of 1916 provides for the sharing of highway construction costs between the States and the Federal Government with the initiative retained by each State for choosing projects and carrying them out. The planning and development of Federal-aid systems began in 1921. Federal funds share with State funds in costs of engineering, construction, and right-of-way acquisition on the designated systems while other charges, such as maintenance and policing, are borne entirely by the States and local agencies.

The Federal-aid primary system connects all of the principal cities, county seats, ports, manufacturing areas, and other traffic generating areas. In general, these are the same as the main State trunkline roads. The Federal-aid secondary system consists of important feeder roads linking the farms, factories, distribution outlets, and smaller communities with the primary system.

Certain sections of the primary system are more important than others from the viewpoint of national interest. In 1956, Congress extended the National System of Interstate and Defense Highways from 40,000 to 41,000 miles and provided a long-range program to complete the system. Federal funds of \$37 billion, providing 90 percent of the total estimated cost, are authorized for the fiscal years 1957 to 1971.

Motor carriers.—Prior to 1950, class I for-hire motor carriers were classified by the Interstate Commerce Commission as those with \$100,000 or more of gross annual operating revenue. Beginning 1950, the class I minimum became \$200,000. Beginning 1957, the class I minimum for motor carriers of property was increased to \$1,000,000; however, the minimum for class I motor carriers of passengers remained at \$200,000.

Railroads.—The total railroad mileage of the United States comprises companies reporting to the Interstate Commerce Commission, grouped as follows: (1) Regular interstate carriers (and their nonoperating subsidiaries); (2) switching and terminal railroads; and (3) private railroads (identified by the Commission as "circular" because they report on brief circulars, or as "unofficial" when their reports are received too late for tabulation). Except for certain mileage data, circular and unofficial companies are not included in the statistics. Switching and terminal roads, formerly included with operating railroads, are now separated, and data for them do not appear in most of the tables.

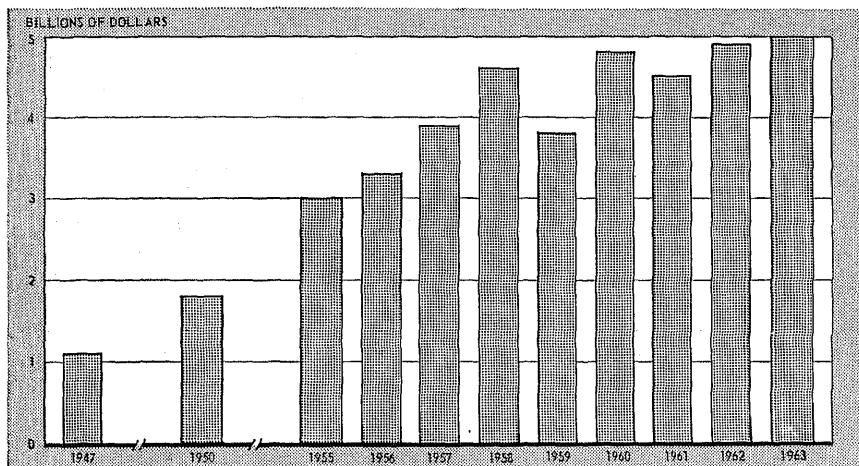
Nonoperating subsidiaries comprise proprietary companies, which are covered by the reports of operating carriers, and lessor companies, which have no traffic and whose reports appear only in statistics of capitalization, dividends, and investment.

Operating railroads are classified on the basis of operating revenues. Prior to 1956, the classification was as follows: Class I, those having more than \$1,000,000 gross annual operating revenue; class II, from \$100,000 to \$1,000,000; and class III, less than \$100,000. Since 1956, the following classification has been in effect: Class I, \$3,000,000 or more; and class II, under \$3,000,000. Class III has been eliminated.

Alaska and Hawaii.—Statements specifying inclusion or exclusion of figures for Alaska and Hawaii appear in the headnotes to each table unless the inclusion or exclusion is self-evident.

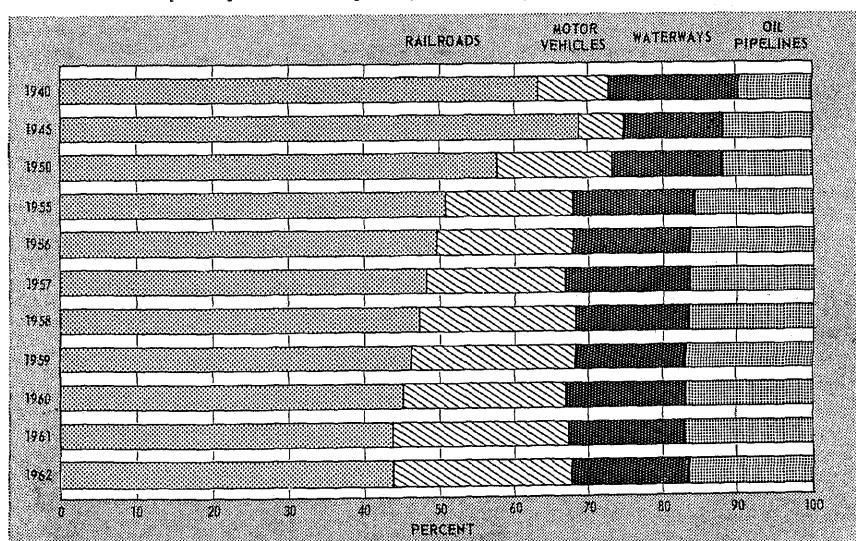
Historical statistics.—Tabular headnotes provide cross-references, where applicable, to *Historical Statistics of the United States, Colonial Times to 1957*. See preface.

FIG. XXXIII. HIGHWAY CONSTRUCTION CONTRACTS AWARDED: 1947 TO 1963
 [See table 766]



Source: Dept. of Commerce, Bureau of the Census.

FIG. XXXIV. PERCENT DISTRIBUTION OF TON-MILES OF DOMESTIC INTERCITY FREIGHT TRAFFIC, BY TYPE OF TRANSPORTATION: 1940 TO 1962
 [Airways not shown separately—less than 1 percent. See table 787]



Source: Chart prepared by Dept. of Commerce, Bureau of the Census. Data from Interstate Commerce Commission.

Transportation—Land

No. 764. EXISTING RURAL AND MUNICIPAL HIGHWAY MILEAGE, BY GOVERNMENTAL CONTROL: 1930 TO 1962

[In thousands. As of December 31. Beginning 1959, includes Alaska and Hawaii. Municipal roads are those within incorporated places, densely populated New England towns, and certain of the more populous unincorporated areas. All other roads are classed as rural. See *Historical Statistics, Colonial Times to 1957*, series Q 246, and, for similar but not exactly comparable data, series Q 247 and Q 251]

MILEAGE AND CONTROL	1930	1940	1950	1955	1958	1959	1960	1961	1962
Total mileage.....			3,313	3,418	3,479	3,511	3,546	3,573	3,600
Rural mileage.....	3,009	2,990	2,990	3,045	3,074	3,094	3,116	3,127	3,144
Under State control.....	324	524	581	619	643	654	659	665	674
Under local control.....	2,685	2,466	{ 2,336	2,333	2,330	2,333	2,345	2,346	2,351
Under Federal control.....			73	93	101	107	112	116	120
Municipal mileage.....	n.a.		323	373	405	416	430	446	455
Under State control.....	n.a.	27	36	42	47	48	50	54	56
Under local control.....	n.a.		287	331	358	368	380	392	399

n.a. Not available.

Source: Dept. of Commerce, Bureau of Public Roads; annual report, *Highway Statistics*.

No. 765. EXISTING HIGHWAY MILEAGE OF RURAL ROADS: 1930 TO 1962

[In thousands. As of December 31. Beginning 1959, includes Alaska and Hawaii. For definition of rural roads, see headnote, table 764. See *Historical Statistics, Colonial Times to 1957*, series Q 247-250, for similar but not exactly comparable data]

-TYPE AND CONTROL	1930	1940	1950	1955	1958	1959	1960	1961	1962
All rural roads.....	3,009	2,990	2,990	3,045	3,074	3,094	3,116	3,127	3,144
Primary State highways.....	324	{ 329	363	387	395	403	408	406	407
Secondary State highways.....		{ 81	88	91	98	101	105	106	110
County roads under State control.....		114	122	131	136	136	136	137	137
County and local roads 1.....	2,685	2,466	2,417	2,436	2,445	2,455	2,472	2,478	2,491
Surfaced rural roads.....	694	1,340	1,679	1,942	2,083	2,125	2,165	2,179	2,229
Primary State highways.....	302	351	381	391	398	398	399	401	402
Secondary State highways.....	68	73	84	92	96	100	101	105	105
County roads under State control.....	55	83	103	109	110	111	111	113	115
County and local roads 1.....	467	918	1,172	1,374	1,491	1,521	1,555	1,564	1,606
Nonsurfaced rural roads 2.....	2,315	1,650	1,311	1,103	991	969	951	948	916
Primary State highways.....	27	12	6	4	4	4	4	5	5
Secondary State highways.....	18	15	7	6	5	5	5	5	5
County roads under State control.....	50	39	28	27	26	26	25	24	22
County and local roads 1.....	2,218	1,548	1,245	1,062	984	934	917	914	884

¹ Includes mileage in national and State parks, forests, reservations, etc., not included as part of State or local systems.

² Includes mileage not classified by type of surface.

Source: Dept. of Commerce, Bureau of Public Roads; annual report, *Highway Statistics*.

No. 766. HIGHWAY CONSTRUCTION—CONTRACTS AWARDED, BY OWNERSHIP: 1947 TO 1963

[In millions of dollars. Beginning 1959, includes Alaska and Hawaii. Includes force-account work started on Federal and State projects]

OWNERSHIP	1947	1950	1955	1958	1959	1960	1961	1962	1963
All construction.....	1,108	1,816	2,992	4,585	3,805	4,756	4,482	4,891	4,989
Federally owned.....	25	36	59	96	86	129	92	95	142
State owned.....	892	1,492	2,560	3,996	3,213	3,901	3,803	4,241	4,275
Federally aided projects:									
Total value.....	635	798	1,256	3,489	2,638	3,097	3,168	3,253	3,730
Federal funds.....	329	415	667	2,504	1,877	2,218	2,289	2,506	2,770
Independent State projects:									
Total value.....	257	694	1,304	507	575	804	634	988	546
Toll facilities.....	n.a.	228	695	44	50	165	92	326	27
Locally owned 1.....	191	289	874	494	506	725	588	555	572

n.a. Not available.

¹ By municipalities, counties, and local level special districts.

Source: Dept. of Commerce, Bureau of the Census. In Dept. of Commerce, Business and Defense Services Administration; *Construction Review*.

Road Mileage

557

No. 767. EXISTING MUNICIPAL AND RURAL HIGHWAY MILEAGE—STATES: 1962

[As of December 31. For definition of municipal and rural roads, see headnote, table 764. Compiled for latest available year from reports of State authorities and planning survey data]

STATE	Total rural and municipal	Muni- cipal	RURAL					
			Total	Type		Governmental control		
				Surfaced	Nonsur- faced	State ¹	Local	Federal ²
United States-----	3,599,581	455,244	3,144,337	2,228,570	915,767	³ 673,139	2,351,435	119,763
Alabama-----	75,758	10,325	65,433	54,831	10,602	³ 17,128	48,305	-----
Alaska-----	6,212	314	5,898	2,312	3,586	4,240	1,558	100
Arizona-----	39,980	5,305	34,046	13,267	21,378	4,894	16,275	13,476
Arkansas-----	79,748	6,594	73,154	44,546	28,608	10,526	60,482	2,146
California-----	151,712	34,712	117,108	71,897	45,211	14,838	78,176	24,099
Colorado-----	79,299	5,606	73,693	38,231	35,462	7,870	65,285	529
Connecticut-----	17,074	5,809	11,268	11,112	156	2,820	8,448	-----
Delaware-----	4,706	1,180	3,520	3,280	246	³ 3,526	-----	-----
Dist. of Columbia-----	1,238	1,238	-----	-----	-----	-----	-----	-----
Florida-----	71,785	17,250	54,529	33,281	21,248	14,236	40,293	-----
Georgia-----	96,727	13,551	83,176	47,060	35,516	14,720	68,428	28
Hawaii-----	3,165	689	2,476	2,276	200	1,068	1,341	67
Idaho-----	42,055	2,590	39,465	24,700	14,765	4,659	27,055	7,751
Illinois-----	127,000	24,573	102,427	92,888	9,530	12,907	89,520	-----
Indiana-----	103,113	15,734	87,379	79,481	7,898	9,939	77,440	-----
Iowa-----	112,011	12,347	99,664	90,192	9,472	9,031	90,633	-----
Kansas-----	132,786	8,914	123,872	77,347	46,625	9,922	113,942	8
Kentucky-----	69,374	4,705	64,669	49,002	15,667	19,989	44,416	264
Louisiana-----	48,353	8,560	39,793	32,723	7,070	³ 14,021	25,772	-----
Maine-----	20,958	2,059	18,899	16,331	2,568	³ 10,865	7,902	132
Maryland-----	22,504	3,687	18,877	18,685	192	4,572	14,286	19
Massachusetts-----	26,438	9,864	16,574	15,095	1,479	2,108	14,466	-----
Michigan-----	111,902	17,392	94,510	74,800	19,710	8,051	86,459	-----
Minnesota-----	124,724	14,731	109,993	93,613	16,380	11,269	97,297	1,427
Mississippi-----	64,210	5,399	58,811	54,711	4,100	9,757	48,850	204
Missouri-----	113,339	13,895	99,444	89,688	9,806	29,403	60,494	547
Montana-----	74,655	1,789	72,866	30,767	42,099	11,219	54,090	7,557
Nebraska-----	102,700	5,902	96,798	57,646	39,252	9,120	87,388	286
Nevada-----	44,753	1,115	43,638	12,932	30,706	³ 6,211	37,414	13
New Hampshire-----	14,164	1,505	12,659	9,855	2,804	3,834	8,730	95
New Jersey-----	32,937	12,554	19,783	17,533	2,250	1,723	18,060	-----
New Mexico-----	63,350	3,086	60,264	14,297	45,907	11,324	43,884	5,056
New York-----	107,156	17,370	89,786	78,448	11,338	13,611	76,165	10
North Carolina-----	81,904	11,637	70,267	60,648	9,619	³ 68,966	-----	1,301
North Dakota-----	103,971	2,851	101,120	57,672	43,448	6,086	94,484	550
Ohio-----	105,370	21,325	84,045	82,302	1,743	15,961	68,084	-----
Oklahoma-----	104,028	10,797	93,831	57,659	36,172	11,189	82,642	-----
Oregon-----	76,943	5,759	71,184	42,047	29,137	8,384	34,170	28,630
Pennsylvania-----	109,908	17,780	92,128	71,089	21,039	42,393	49,427	308
Rhode Island-----	4,380	3,052	1,328	1,287	91	737	591	-----
South Carolina-----	57,085	5,444	51,641	29,046	22,595	26,617	25,024	-----
South Dakota-----	91,407	2,762	88,645	49,107	39,538	7,222	80,163	1,260
Tennessee-----	75,457	8,488	66,969	64,019	2,080	8,101	58,039	829
Texas-----	234,698	39,715	194,983	122,554	72,429	55,239	139,744	-----
Utah-----	36,291	4,025	32,266	15,926	16,340	5,018	19,437	7,811
Vermont-----	13,766	910	12,856	10,793	2,063	2,085	10,747	24
Virginia-----	57,204	6,118	51,088	49,063	1,125	³ 49,305	702	1,081
Washington-----	66,671	7,808	58,863	47,845	11,018	9,646	39,036	10,181
West Virginia-----	34,708	3,020	31,088	20,741	10,947	³ 31,011	-----	677
Wisconsin-----	98,887	12,286	86,601	79,509	7,092	10,488	76,066	48
Wyoming-----	60,879	1,122	59,757	12,236	47,521	5,277	51,281	3,249

¹ Includes 19,787 miles of State park, forest, institutional, and other roads, rural and municipal, that are not part of State or local highway systems. Also includes 3,381 miles of toll roads, bridges, tunnels, etc.

² Comprises mileage of roads not forming a part of State or local highway systems.

³ Includes mileage of county roads under State control in Alabama (8 counties), Delaware, Nevada, North Carolina, Virginia (all but 2 counties), and West Virginia; farm-to-market system in Louisiana; and the State-aid system in Maine.

Source: Dept. of Commerce, Bureau of Public Roads; annual report, *Highway Statistics, 1962*, and unpublished data.

Transportation—Land

No. 768. MILEAGE AND COST OF DESIGNATED FEDERAL-AID HIGHWAY SYSTEMS:
1917 TO 1963[Includes Hawaii and Puerto Rico, and, beginning 1957, Alaska. See also *Historical Statistics, Colonial Times to 1957*, series Q 261-264]

YEAR	MILES OF HIGHWAY		COST (\$1,000) ³		
	Total existent ¹	Completed during year ²	Total	Federal funds	State funds
1917-1921		12,919	221,740	95,054	126,686
1925	178,797	11,001	220,921	100,030	120,891
1930	193,049	10,339	236,520	99,839	136,681
1935	214,000	12,811	242,420	218,112	24,307
1940	284,112	11,549	269,216	149,724	119,492
1945	232,772	8,035	101,037	76,485	24,552
1950	640,753	19,876	753,199	389,578	363,621
1955	741,824	22,571	1,287,304	665,913	621,451
1956	777,514	23,609	1,444,059	756,926	687,133
1957	809,672	22,424	1,714,240	968,564	745,676
1958	830,569	28,137	2,744,486	1,669,015	1,075,471
1959	854,294	32,633	3,708,857	2,517,502	1,191,355
1960	866,841	20,969	3,264,033	2,272,518	991,515
1961	879,539	21,313	3,264,815	2,339,372	925,443
1962	886,678	21,051	3,422,727	2,436,809	985,918
1963	n.a.	19,561	3,789,893	2,767,361	1,022,532

¹ n.a. Not available.¹ Through 1945, total existing mileage of Federal-aid primary system; beginning 1950, includes secondary system. Through 1955, data as of June 30; thereafter, as of December 31.² Comprises construction and reconstruction mileage.³ Represents actual expenditures of funds on calendar-year basis. Beginning 1935, includes money spent on public works and defense highways. Beginning 1940, includes secondary highways.Source: Dept. of Commerce, Bureau of Public Roads; annual reports, *Highway Statistics*, and *Highway Progress*, 1963.No. 769. STATE-HIGHWAY SYSTEMS—EXISTING MILEAGE AND MILEAGE BUILT:
1940 TO 1962[Data refer to calendar years for most States. Beginning 1959, includes Alaska and Hawaii. For definition of rural and municipal roads, see headnote, table 764. See *Historical Statistics, Colonial Times to 1957*, series Q 255-259, for data on total mileage built by State highway departments]

ITEM	1940	1950	1955	1959	1960	1961	1962
Total mileage at end of year	551,766	608,468	661,519	702,198	709,054	718,821	729,092
Primary rural State-highway systems	329,472	363,213	386,611	402,686	402,805	406,199	406,705
Nonsurfaced roads	26,991	12,007	6,303	4,355	4,157	5,476	5,195
Surfaced roads	302,481	351,206	380,308	398,331	398,648	400,728	401,510
Low type ¹	180,091	168,554	169,458	162,080	159,691	156,795	152,772
High type ¹	122,390	182,652	210,850	236,251	238,987	243,928	248,738
Secondary rural roads	195,245	209,339	222,729	236,972	240,916	242,925	246,647
Municipal extensions of State-highway systems ²	27,049	35,916	41,912	48,390	50,158	53,565	55,953
Other State roads ³			10,267	14,150	15,175	16,132	19,787
Total mileage built during year by State-highway departments	32,594	55,487	53,559	50,232	49,443	44,279	52,360
Graded and drained	2,207	3,364	1,545	2,287	2,076	1,743	2,091
Surfaced	30,337	52,123	52,014	47,945	47,367	42,536	50,269
State controlled	29,695	44,265	41,120	36,282	36,944	33,449	41,052
Graded and drained	1,423	1,784	694	185	328	372	433
High-type surface ¹	5,223	13,379	17,672	21,892	22,013	20,554	26,305
Low-type surface ¹	23,049	29,102	22,784	14,205	14,603	12,523	14,314
State-highway funds available ⁴ mil. dol.	2,038	5,168	9,547	12,301	12,303	13,102	14,174
Disbursements of State-highway funds ⁴	1,678	3,562	6,034	9,277	8,987	9,627	10,451

¹ For 1940, low type was distinguished from high type by quality of surfacing material used; for 1950, also by rigidity of base; and beginning 1959, also by combined thickness of surface and base.² Consists of streets that provide necessary municipal connecting links into or through a municipality, regardless of administrative control.³ Mileage of State park, forest, institutional, toll, and other roads under State control.⁴ Includes funds transferred to or from local units and proceeds of highway-user imposts allotted by the State treasurer for county and other local roads and streets, and nonhighway purposes. See also tables 772 and 773.⁵ Includes accumulated reserves.Source: Dept. of Commerce, Bureau of Public Roads; annual report, *Highway Statistics*.

Federal-Aid Highway Systems

559

No. 770. FEDERAL-AID HIGHWAY SYSTEMS, 1962, AND PROJECTS, 1963—STATES AND PUERTO RICO

[Money figures in millions of dollars. Systems as of December 31, and projects as of June 30. Projects comprise those financed from the Federal-aid primary, secondary, urban, and interstate funds. See text, p. 553.]

STATE OR OTHER AREA	SYSTEMS (miles), 1962			PROJECTS, 1963						
	Primary		Secondary	Completed during fiscal year			Under construction			
	Total	National system of interstate highways		Miles	Total cost	Federal funds	Miles	Total cost	Federal funds	
	Designated	Open to traffic								
Total.....	265,489	40,859	14,336	621,189	20,384	3,455.2	2,463.3	28,187	10,389.8	7,999.1
United States.....	264,953	40,830	14,336	620,077	20,355	3,442.0	2,457.1	28,117	10,353.1	7,981.8
Alabama.....	6,500	875	208	23,913	510	54.4	37.8	883	176.5	133.5
Alaska.....	3,368			3,220	100	17.7	16.8	344	79.9	71.4
Arizona.....	2,816	1,161	541	4,142	289	42.3	35.1	263	98.8	90.7
Arkansas.....	4,042	518	43	13,540	509	37.0	22.8	750	128.7	95.5
California.....	9,705	2,179	713	12,160	336	273.9	208.6	492	984.0	785.5
Colorado.....	4,564	948	304	4,015	309	47.3	33.5	286	74.5	56.6
Connecticut.....	1,273	294	166	1,230	6	12.6	8.8	47	183.2	145.5
Delaware.....	652	40	4	1,457	11	2.1	1.1	34	56.8	45.5
Dist. of Columbia.....	167			121	2	5.4	3.1	17	117.9	93.0
Florida.....	5,408	1,136	215	14,042	445	70.9	49.4	574	159.0	122.9
Georgia.....	8,907	1,104	269	19,754	480	79.0	53.0	1,034	312.0	239.7
Hawaii.....	511	49	6	662	1	4.8	3.5	11	17.7	11.8
Idaho.....	3,321	612	219	5,460	151	12.1	8.6	475	69.8	57.2
Illinois.....	10,983	1,588	654	14,145	630	219.6	160.8	976	507.8	397.3
Indiana.....	6,007	1,121	353	17,906	376	101.7	71.2	358	229.2	177.7
Iowa.....	10,204	709	273	33,098	973	54.2	36.2	1,131	107.5	75.4
Kansas.....	7,822	801	445	28,806	1,045	47.1	28.4	1,092	81.4	58.3
Kentucky.....	4,547	704	173	15,253	287	80.3	55.1	314	184.3	139.2
Louisiana.....	3,325	683	64	8,829	232	87.0	68.6	500	348.2	278.6
Maine.....	1,926	312	120	2,302	81	25.6	16.8	150	43.6	32.2
Maryland.....	2,417	354	156	7,272	111	52.7	40.7	201	138.4	107.9
Massachusetts.....	2,368	448	222	2,260	71	85.7	58.8	115	209.5	157.3
Michigan.....	7,073	1,079	627	26,052	984	155.0	113.6	1,242	345.5	259.8
Minnesota.....	8,495	898	149	30,784	909	59.9	39.3	1,380	295.2	235.9
Mississippi.....	5,849	678	151	16,381	636	60.6	42.2	1,148	119.6	85.8
Missouri.....	8,904	1,105	480	23,155	1,326	108.7	78.3	705	258.1	192.0
Montana.....	6,487	1,181	206	5,489	240	27.2	18.6	886	149.6	122.2
Nebraska.....	5,868	490	89	17,743	763	53.7	35.5	980	95.4	71.4
Nevada.....	2,197	584	130	2,980	157	20.4	18.7	244	77.3	72.3
New Hampshire.....	1,238	214	95	1,676	34	21.1	16.0	61	38.6	30.1
New Jersey.....	2,167	376	116	2,172	75	74.6	54.8	107	323.3	252.3
New Mexico.....	4,029	1,007	327	5,613	219	32.5	24.9	221	67.9	50.0
New York.....	10,657	1,227	768	19,357	292	148.8	79.2	559	838.3	601.4
North Carolina.....	4,683	769	380	29,260	418	61.7	36.1	467	142.8	95.7
North Dakota.....	4,632	568	228	13,069	606	16.7	11.3	1,341	56.0	37.5
Ohio.....	8,047	1,518	679	18,111	182	117.2	89.2	635	605.5	460.4
Oklahoma.....	8,346	794	400	13,265	603	59.5	38.9	743	96.7	66.2
Oregon.....	4,117	782	487	7,981	292	88.3	72.6	273	145.5	115.0
Pennsylvania.....	8,493	1,575	706	13,425	226	155.8	109.7	474	408.1	287.8
Rhode Island.....	508	71	21	482	28	10.5	5.9	28	83.1	62.9
South Carolina.....	5,272	679	286	18,310	656	46.2	29.0	1,200	88.2	63.9
South Dakota.....	6,050	679	223	12,572	539	43.8	34.8	866	44.5	32.9
Tennessee.....	6,834	1,048	148	11,097	719	100.7	76.4	770	315.3	248.5
Texas.....	17,476	3,082	1,134	34,370	1,374	209.9	151.9	1,550	402.5	310.0
Utah.....	2,348	935	100	3,828	180	27.8	23.4	168	67.8	61.0
Vermont.....	1,629	324	52	1,832	55	28.7	22.3	101	48.6	39.5
Virginia.....	5,632	1,053	215	18,648	364	90.1	65.6	548	410.8	346.6
Washington.....	3,970	726	300	11,416	281	68.9	49.1	376	193.0	149.4
West Virginia.....	2,912	532	136	10,748	68	25.4	18.1	97	114.9	82.6
Wisconsin.....	6,355	453	237	19,007	592	74.4	48.8	565	149.1	105.5
Wyoming.....	3,862	917	316	2,588	352	40.5	34.2	335	62.2	52.5
Puerto Rico.....	536	29	1,112	29	13.2	6.2	70	36.7	17.3	

Source: Dep. of Commerce, Bureau of Public Roads; annual report, *Highway Progress, 1963*.

No. 771. HIGHWAY AND STREET RECEIPTS AND DISBURSEMENTS: 1950 TO 1964

[In millions of dollars. Federal and State data are for calendar years; local data for varying fiscal years. Includes Alaska, Hawaii, and Puerto Rico. Data for municipal places and streets include all municipalities and other political subdivisions urban in character. See *Historical Statistics, Colonial Times to 1957*, series Q 280-309, for related but not exactly comparable data.]

RECEIPTS AND DISBURSEMENTS	1950	1955	1960	1961	1962	1963 (prcl.)	1964 est.
SOURCE OF RECEIPTS							
Total funds available	4,487	7,355	10,761	11,492	12,378	12,913	13,541
Federal Government ¹	72	97	202	200	232	286	292
Motor fuel and vehicle taxes ²			2,827	2,834	3,088	3,411	3,610
General fund appropriations	492	770	197	207	228	294	295
Investment income and other receipts ⁴	8	21	39	42	48	57	50
Intergovernmental payments	-431	-687	-2,551	-2,741	-2,941	-3,364	-3,697
Funds drawn from (+) or placed in (-) reserves	+8	-7	-310	-142	-191	-112	+25
State agencies	2,557	4,670	7,125	7,688	8,358	8,711	9,192
Motor fuel and vehicle taxes ²	2,270	3,583	4,731	4,868	5,155	5,326	5,541
Tolls	72	209	426	450	480	533	573
Parking fees			1	1	1	1	1
General fund appropriations	52	53	54	80	74	71	67
Investment income and other receipts ⁴	47	98	163	164	175	191	204
Bond issue proceeds ⁵	400	644	680	718	1,017	503	608
Intergovernmental payments	-182	-158	1,387	1,540	1,708	2,065	2,344
Funds drawn from (+) or placed in (-) reserves	-102	+239	-317	-138	-250	+21	-146
Local rural governments	980	1,324	1,635	1,757	1,821	1,886	1,952
Motor fuel and vehicle taxes ²	2	4	9	8	9	10	10
Tolls	12	15	19	16	17	17	17
Parking fees					1	1	1
Property taxes and assessments	327	498	513	521	525	530	548
General fund appropriations	81	99	170	192	195	195	198
Investment income and other receipts ⁴	30	48	52	55	55	56	56
Bond issue proceeds ⁵	90	208	85	153	90	130	130
Intergovernmental payments	468	614	797	844	837	874	895
Funds drawn from (+) or placed in (-) reserves	-30	-100	-10	-32	+92	+73	+07
Municipalities	878	1,264	1,799	1,847	1,967	2,030	2,105
Motor fuel and vehicle taxes ²	20	56	70	67	70	72	72
Tolls	32	46	54	53	58	60	62
Parking fees	21	23	74	64	70	75	78
Property taxes and assessments	153	240	340	378	390	405	437
General fund appropriations	412	404	438	489	490	505	558
Investment income and other receipts ⁴	39	53	90	90	87	89	91
Bond issue proceeds ⁵	162	335	454	401	280	350	300
Intergovernmental payments	145	229	307	357	398	425	458
Funds drawn from (+) or placed in (-) reserves	-106	-122	-88	-52	+124	+49	+49
PURPOSE OF DISBURSEMENT							
Total disbursements	4,487	7,355	10,761	11,492	12,378	12,913	13,541
Federal Government	72	97	202	200	232	286	292
Capital outlay	55	78	141	139	168	214	211
Maintenance	6	7	27	28	29	31	30
Administration and research ⁶	11	12	34	33	41	51	
State agencies	2,557	4,670	7,125	7,688	8,358	8,711	9,192
Capital outlay	1,648	3,300	4,983	5,437	5,936	6,149	6,521
Maintenance	514	693	1,006	1,040	1,113	1,192	1,236
Administration and research ⁶	113	163	296	319	344	365	387
Highway police and safety	79	134	236	256	270	304	321
Interest	60	189	304	306	346	345	355
Debt retirement ⁷	143	191	300	330	340	356	372
Local rural governments	980	1,324	1,635	1,757	1,821	1,886	1,952
Capital outlay	265	449	500	578	581	587	595
Maintenance	557	701	922	922	972	1,024	1,075
Administration and research ⁶	44	64	88	93	100	105	109
Highway police and safety	(*)		8	7	8	9	10
Interest	31	28	32	40	40	41	41
Debt retirement ⁷	83	82	85	117	120	120	122
Municipalities	878	1,264	1,799	1,847	1,967	2,030	2,105
Capital outlay	339	507	666	646	730	736	768
Maintenance	348	480	685	738	754	785	818
Administration and research ⁶	51	40	69	77	79	80	82
Highway police and safety	(*)	42	83	85	89	95	95
Interest	44	54	80	83	85	89	92
Debt retirement ⁷	96	141	216	218	230	245	250

¹ Includes forest highway and other funds administered by the Bureau of Public Roads, as well as funds of other Federal agencies not derived from the Highway Trust Fund.

² Excludes amounts allocated for collection expenses and nonhighway purposes.

³ Receipts of Federal Highway Trust Fund.

⁴ Par value of long-term obligation. Premiums and discounts on sale of bonds included in investment income and other receipts. Excludes short-term notes and refunding issues.

⁵ Includes engineering and equipment costs not charged to capital outlay and maintenance, and miscellaneous expenditures.

⁶ Par value of long-term obligations. Redemption premiums and discounts included with interest payments. Excludes redemption of short-term notes, or redemption by refunding of notes.

⁷ Included with administration and research.

State Highway Funds

561

No. 772. DISBURSEMENTS OF STATE HIGHWAY FUNDS—STATES: 1930 TO 1962

In millions of dollars. Comprises disbursements, whether from current revenues or proceeds of loans, for construction, maintenance, interest and principal payments on highway bonds, transfers to local units, and miscellaneous disbursements. Includes transactions by State toll authorities. Beginning 1940, covers calendar years; figures for 1930 for many States represent fiscal years.]

STATE	1930	1940	1945	1950	1955	1959	1960	1961	1962
United States ¹	1,331	1,678	1,302	3,562	6,034	9,277	8,957	9,627	10,451
Alabama	20	28	26	49	87	140	174	177	149
Alaska	n.a.	n.a.	n.a.	n.a.	n.a.	23	19	25	34
Arizona	6	9	6	20	33	64	72	86	93
Arkansas	40	18	15	46	55	82	95	91	108
California	56	99	138	268	558	761	786	1,003	1,010
Colorado	11	15	12	38	56	93	91	95	96
Connecticut	16	23	15	38	79	180	161	160	184
Delaware	8	4	3	32	26	43	36	29	51
Dist. of Columbia	2	7	4	11	24	41	48	58	59
Florida	20	39	36	93	152	287	316	266	375
Georgia	17	39	24	74	109	179	167	175	238
Hawaii	n.a.	n.a.	n.a.	n.a.	n.a.	25	23	24	27
Idaho	8	8	6	19	27	49	44	51	56
Illinois	53	71	53	113	229	481	475	438	448
Indiana	27	40	35	68	200	225	241	246	235
Iowa	57	33	23	79	109	179	169	159	157
Kansas	17	21	16	50	110	134	109	118	110
Kentucky	20	26	20	67	102	188	138	189	249
Louisiana	30	30	22	71	115	225	204	182	215
Maine	18	14	10	24	65	65	62	63	67
Maryland	20	27	19	84	138	171	166	187	218
Massachusetts	24	38	21	98	203	277	237	223	270
Michigan	48	67	50	106	249	381	418	496	463
Minnesota	39	31	23	65	101	179	167	183	162
Mississippi	11	31	23	42	75	114	110	116	117
Missouri	44	28	21	53	105	162	165	177	192
Montana	8	12	7	22	30	55	54	58	65
Nebraska	16	20	16	36	59	79	95	89	99
Nevada	3	4	2	9	15	28	22	27	35
New Hampshire	10	8	7	14	30	47	50	48	48
New Jersey	49	58	46	188	303	245	221	305	338
New Mexico	10	13	8	26	39	72	64	62	66
New York	109	199	114	304	471	781	652	688	820
North Carolina	26	40	29	136	141	180	179	200	210
North Dakota	6	7	6	22	28	60	50	47	42
Ohio	68	93	76	147	383	543	523	535	600
Oklahoma	27	24	24	73	113	149	134	147	165
Oregon	19	18	14	50	79	123	113	125	139
Pennsylvania	104	128	73	279	350	477	423	450	557
Rhode Island	4	8	6	14	30	37	42	44	45
South Carolina	23	23	22	46	57	116	109	104	95
South Dakota	8	9	6	20	34	57	57	71	60
Tennessee	56	34	32	79	108	176	187	204	211
Texas	65	80	67	178	282	531	498	491	510
Utah	5	6	6	15	23	56	49	57	63
Vermont	9	8	4	10	17	39	43	50	50
Virginia	23	28	29	76	112	163	211	249	287
Washington	16	40	29	78	127	181	171	213	220
West Virginia	24	26	27	51	64	106	110	107	99
Wisconsin	27	41	28	68	100	181	171	188	192
Wyoming	4	6	3	14	22	47	44	49	54

n.a. Not available.

¹ Beginning 1959, includes Alaska and Hawaii.Source: Dept. of Commerce, Bureau of Public Roads; annual report, *Highway Statistics*.

Transportation—Land

No. 773. STATE HIGHWAY FUNDS AVAILABLE, BY SOURCE, AND DISBURSEMENTS, BY PURPOSE—STATES: 1962

[In millions of dollars. Comprises receipts and disbursements of all State imposts on highway users, all other funds available to State highway departments, and State funds other than those of highway departments, which were reported as being applied to highway purposes. Includes transactions of interstate and intrastate toll authorities that are operated by State or quasi-State agencies. See also *Historical Statistics, Colonial Times to 1957*, series Q 266-278.]

STATE	FUNDS AVAILABLE				DISBURSEMENTS			
	Total	Motor-vehicle fees, motor-fuel and motor-carrier taxes	Federal funds	Income from issue of bonds, notes, etc.	All other sources ¹	Total ²	For State-administered highways ³	
		Capital outlay, roads and bridges ⁴	Mainte-nance ⁴	Other ⁴				
United States	14,174	5,832	2,933	1,078	4,331	10,451	5,608	1,093
Alabama	177	90	56	4	26	149	57	11
Alaska	39	8	19	—	12	34	23	8
Arizona	96	47	43	—	6	93	61	7
Arkansas	132	62	41	—	30	108	61	12
California	1,147	668	258	—	221	1,010	558	50
Colorado	106	63	34	—	10	96	47	10
Connecticut	296	74	29	102	91	184	110	23
Delaware	90	17	12	47	15	51	29	5
Dist. of Columbia	63	22	21	14	6	59	—	15
Florida	600	204	48	184	163	375	166	21
Georgia	389	113	61	69	145	288	137	13
Hawaii	39	14	8	—	17	27	14	3
Idaho	58	27	27	—	5	56	33	6
Illinois	610	271	163	—	176	448	229	40
Indiana	312	152	77	—	83	235	102	30
Iowa	194	113	37	—	44	157	60	16
Kansas	135	70	32	—	33	110	51	20
Kentucky	383	93	57	28	204	249	175	28
Louisiana	300	83	71	30	116	215	124	23
Maine	88	35	21	—	32	67	34	16
Maryland	316	98	40	94	84	218	91	13
Massachusetts	474	103	46	200	119	270	134	32
Michigan	606	230	105	85	187	483	235	27
Minnesota	239	108	57	—	73	162	85	18
Mississippi	145	63	37	2	42	117	49	11
Missouri	238	125	81	—	32	192	132	33
Montana	69	28	33	—	9	65	49	6
Nebraska	98	55	38	—	4	99	56	10
Nevada	39	17	16	—	7	35	24	5
New Hampshire	47	23	16	—	8	48	26	10
New Jersey	751	204	75	40	432	338	126	35
New Mexico	71	39	28	—	4	66	39	12
New York	1,425	389	160	100	777	820	514	86
North Carolina	258	150	38	—	69	210	100	53
North Dakota	49	24	16	—	9	42	22	5
Ohio	725	332	193	—	200	600	312	42
Oklahoma	246	106	33	—	107	165	76	15
Oregon	180	74	68	20	18	139	66	15
Pennsylvania	687	321	126	21	219	557	313	91
Rhode Island	56	28	10	8	10	45	26	6
South Carolina	131	68	31	—	33	95	55	16
South Dakota	72	29	25	—	17	60	36	6
Tennessee	216	120	81	5	10	211	120	14
Texas	577	361	149	—	67	510	299	63
Utah	70	29	31	—	10	63	44	7
Vermont	41	18	25	3	-6	50	32	6
Virginia	437	125	85	—	227	287	185	44
Washington	275	133	68	17	57	220	100	42
West Virginia	102	63	19	3	17	99	56	21
Wisconsin	211	123	51	—	37	192	87	20
Wyoming	68	17	37	—	14	54	40	5

¹ Balances from 1961, totaling \$3,477 million, and miscellaneous current revenues, totaling \$855 million.

² Includes disbursements of \$249 million for collection and administration of highway-user revenues, and of \$459 million for nonhighway purposes.

³ Expenditures on county roads under State control in Ala. (8 counties), Del., N.C., Va. (all except 2 counties), and W. Va. included with those for State-administered highways.

⁴ Includes some administration, engineering, and miscellaneous disbursements.

⁵ Disbursements for administration, engineering, and miscellaneous; State highway police and safety; bond interest; and bond retirement.

⁶ Less than \$500,000.

Highway Debt—Motor Vehicles

563

No. 774. PUBLIC HIGHWAY DEBT—LONG-TERM HIGHWAY OBLIGATIONS OF STATE AND LOCAL GOVERNMENTS: 1950 TO 1964

[In millions of dollars. State data are for calendar year; local data are for varying fiscal years. Beginning 1959, includes Alaska and Hawaii. Excludes duplicated and interunit obligations except as noted. Municipal obligations include data for all municipalities and other political subdivisions urban in character. See *Historical Statistics, Colonial Times to 1957*, series Q 279, for State obligations outstanding]

ITEM	1950	1955	1958	1959	1960	1961	1962	1963 (prel.)	1964 est.
Total debt issued¹	652	1,174	1,352	1,158	1,206	1,272	1,387	983	1,038
State obligations	400	646	913	669	680	718	1,017	503	608
County and local rural obligations	90	205	140	153	180	153	90	130	130
Municipal obligations	162	323	299	336	336	401	280	350	300
Total debt redeemed²	322	421	543	610	616	665	690	721	744
State obligations	143	191	252	308	300	330	340	356	372
County and local rural obligations	83	89	94	92	96	117	120	120	122
Municipal obligations	96	141	197	210	220	218	230	245	250
Total debt outstanding	4,436	9,658	12,278	12,576	13,166	13,718	14,415	14,677	14,971
State obligations	2,096	6,619	8,641	9,004	9,384	9,772	10,449	10,596	10,832
County and local rural obligations	872	1,027	1,130	1,186	1,280	1,252	1,222	1,232	1,240
Municipal obligations	1,468	2,012	2,507	2,386	2,502	2,694	2,744	2,849	2,899

¹ Excludes refunding issues.

² Excludes redemptions by refunding.

Source: Dept. of Commerce, Bureau of Public Roads; releases.

No. 775. MOTOR-VEHICLE TRAVEL, BY CLASS OF ROAD AND TYPE OF VEHICLE: 1940 TO 1962

[In millions of vehicle-miles, except averages. Beginning 1959, estimates for total United States travel based on automatic traffic recorder data from 50 States and District of Columbia. Urban travel includes all travel in municipalities and most travel in urbanized areas. All other travel is classed as rural. See also *Historical Statistics, Colonial Times to 1957*, series Q 321-327]

ITEM	1940	1950	1955	1958	1959	1960	1961	1962
Total travel	302,188	458,246	603,434	664,653	700,478	718,845	737,535	767,774
CLASS OF ROAD								
Rural	152,195	239,998	336,153	357,584	376,688	387,260	397,902	414,602
Main rural roads	109,861	174,350	227,988	265,197	280,393	288,483	297,195	310,184
Local rural roads	42,334	65,648	108,165	92,387	96,295	98,777	100,707	104,418
Urban	149,993	218,248	267,281	307,069	323,790	331,585	339,083	353,172
TYPE OF VEHICLE								
Passenger vehicles	252,257	367,694	402,047	540,183	577,324	592,436	608,953	632,715
Rural	121,988	183,218	265,667	283,454	297,393	305,588	314,762	327,050
Urban	130,269	184,476	226,380	265,729	279,931	286,898	294,191	305,665
Passenger cars ¹	249,600	363,613	457,540	544,873	572,976	588,083	604,557	628,239
Rural	120,540	181,095	263,088	281,253	295,153	303,283	312,437	324,620
Urban	129,060	182,518	224,452	263,620	277,823	284,800	292,120	303,619
Buses	2,657	4,081	4,507	4,310	4,348	4,353	4,396	4,476
Rural	1,448	2,123	2,579	2,201	2,240	2,255	2,325	2,430
Urban	1,209	1,958	1,928	2,109	2,108	2,098	2,071	2,046
Trucks and combinations	49,931	90,552	111,387	115,470	123,184	126,409	128,582	135,059
Rural	30,207	56,780	70,486	74,130	79,295	81,722	83,140	87,552
Urban	19,724	33,772	40,901	41,340	43,859	44,687	45,442	47,507
AVERAGE MILES PER VEHICLE								
Passenger vehicles	9,129	9,078	9,400	9,524	9,559	9,474	9,492	9,461
Passenger cars ¹	9,080	9,020	9,359	9,494	9,529	9,446	9,465	9,435
Buses	18,580	20,910	17,658	15,963	16,408	16,004	15,601	15,964
Trucks and combinations	10,626	10,776	10,697	10,348	10,552	10,583	10,461	10,544

¹ Includes taxicabs and motorcycles.

Source: Dept. of Commerce, Bureau of Public Roads; releases.

Transportation—Land

No. 776. AUTOMOBILE OWNERSHIP, AGE, AND FINANCING: 1950 TO 1963

[Excludes Alaska and Hawaii. For definitions of families and spending units, see text, p. 3, and headnote, table 453, respectively]

ITEM		1950	1955	1959	1960	1961	1962	1963
Total number of families in U.S. ¹	millions	45.7	49.3	52.6	53.4	54.2	54.9	56.5
Total owning automobiles	percent	60	71	74	77	76	74	80
Total number of spending units in U.S. ¹	millions	52.6	54.3	56.8	56.8	58.0	58.8	61.2
Total owning automobiles ²	percent	55	67	71	74	74	72	77
Owning 1 automobile	percent	51	59	59	62	60	58	59
Owning 2 or more automobiles	percent	4	8	12	12	14	14	18
Automobiles owned, by age: ³								
Less than 2 years old	percent	17	12	10	14	13	12	13
2 and 3 years old	percent	19	22	23	20	17	21	18
4, 5, 6, and 7 years old	percent	6	43	38	41	42	38	36
8 years old and over	percent	58	23	28	25	28	29	33
Total automobile purchasers ⁴	millions	12.8	15.5	13.5	15.4	15.0	17.7	
New car	millions	5.3	6.1	5.0	5.3	4.6	5.7	
Average price paid	dollars	2,220	2,940	3,150	3,030	2,840	3,020	
Used car	millions	7.5	9.4	8.5	10.1	10.4	12.0	
Average price paid	dollars	730	780	1,020	820	810	880	
Method of financing by purchasers: ⁵								
All passenger-car buyers ⁶	percent	100	100	100	100	100	100	
Full cash (including trade-in allowance)	percent	47	38	38	47	43	45	n.a.
Installment credit and other borrowing	percent	52	60	61	52	56	54	
New-passenger-car buyers ⁶	percent	100	100	100	100	100	100	
Full cash (including trade-in allowance)	percent	54	39	33	39	38	38	
Installment credit and other borrowing	percent	46	60	66	61	62	62	
Used-passenger-car buyers ⁶	percent	100	100	100	100	100	100	
Full cash (including trade-in allowance)	percent	41	37	41	52	45	49	
Installment credit and other borrowing	percent	57	60	57	47	53	50	

n.a. Not available.

¹ At time of survey, early in year.

² Covers spending units buying cars during year and still owning them at survey time (January–February of following year). ³ Age is determined by subtracting model year from year of survey.

⁴ Includes cars received as gifts whether cash or credit purchased; through 1955, also includes buyers for whom method of financing was not ascertained; detail not available separately.

Source: The University of Michigan, Survey Research Center; *Survey of Consumer Finances*. Prior to 1960, sponsored by Board of Governors of Federal Reserve System. Published periodically in *Federal Reserve Bulletin*.

No. 777. MOTOR VEHICLES—FACTORY SALES AND REGISTRATIONS: 1900 TO 1963

[Beginning 1959, registrations include Alaska and Hawaii, except as noted. See also *Historical Statistics, Colonial Times to 1957*, series Q 310–317]

YEAR	FACTORY SALES							REGISTRATIONS ⁴ (1,000)		
	Number (1,000)			Wholesale value ² (\$1,000,000)				Total	Passenger cars and taxis ⁶	Trucks and buses ⁵
	Total	Pas-senger cars	Trucks and buses ¹	Total	Passenger cars	Trucks and buses ¹	Total	Aver-age ³		
1900	4	4	—	5	5	1,160	—	8	8	—
1910	187	181	6	225	215	1,189	10	1,610	470	458
1920	2,227	1,906	322	2,232	1,809	949	423	1,315	9,251	1,108
1930	3,363	2,787	575	2,035	1,644	590	391	670	26,794	23,035
1940	4,472	3,717	755	2,938	2,371	638	568	752	32,525	27,466
1945	725	70	656	1,239	57	823	1,182	1,803	31,106	25,793
1950	8,003	6,666	1,337	10,176	8,468	1,270	1,708	1,277	40,300	40,334
1955	9,169	7,920	1,249	14,474	12,453	1,572	2,021	1,618	62,875	52,136
1958	5,135	4,258	877	9,740	8,010	1,881	1,730	1,973	68,299	56,871
1959	6,729	5,591	1,137	12,873	10,534	1,884	2,339	2,056	71,459	59,534
1960	7,869	6,675	1,194	14,515	12,164	1,822	2,351	1,969	73,769	61,559
1961	6,677	5,543	1,134	12,442	10,286	1,862	2,156	1,914	75,827	63,261
1962	8,173	6,933	1,240	15,653	13,072	1,885	2,581	2,081	79,023	65,929
1963	9,100	7,638	1,462	17,503	14,427	1,889	3,076	2,104	82,692	68,979
										13,714

¹ A substantial part of the trucks and buses reported comprises chassis without body; hence, excludes the value of bodies for these chassis. Includes military trucks.

² Beginning 1940, includes value of standard equipment.

³ Averages do not indicate price changes since total values may reflect changes in number of makes, models, and/or body types from year to year.

⁴ Includes publicly owned vehicles. ⁵ Prior to 1930, buses included with passenger cars.

⁵ Includes Hawaii; not shown in detail. ⁷ Preliminary.

Source: Factory sales—Automobile Manufacturers Association, Detroit, Mich.; *Automobile Facts and Figures*. Registrations—Dept. of Commerce, Bureau of Public Roads; annual report, *Highway Statistics*, and unpublished data.

Motor Vehicles

565

No. 778. MOTOR VEHICLES—SUMMARY STATISTICS: 1950 TO 1963

[Excludes Alaska and Hawaii, except as noted]

ITEM		1950	1955	1959	1960	1961	1962	1963
SALES, EXPORTS, IMPORTS, AND SCRAPPAGE¹								
Passenger car factory sales	1,000	6,666	7,920	5,591	6,675	5,543	6,933	7,638
4-door sedans	1,000	3,247	3,044	2,066	2,697	2,142	2,611	2,727
2-door sedans, coaches and coupes ²	1,000	2,704	1,691	800	1,092	976	1,124	1,025
2-door and 4-door "hard-top"	1,000	267	2,169	1,459	1,517	1,292	1,813	2,430
Convertibles (except "hard-top")	1,000	208	240	255	305	300	438	490
Station wagons ³	1,000	142	759	913	1,059	826	944	960
Chassis	1,000	9	18	4	3	5	4	6
Truck and bus factory sales	1,000	1,337	1,249	1,137	1,194	1,134	1,240	1,463
Passenger cars (new), exported	1,000	153	264	117	145	140	180	194
Passenger cars (new), imported	1,000	21	57	608	444	279	375	409
Exports, value	\$1,000,000	704	1,367	1,281	1,411	1,300	1,401	4,1,572
Passenger cars (new)	\$1,000,000	179	380	220	235	215	245	4,267
Trucks and buses (new)	\$1,000,000	217	340	392	382	305	254	4,282
Rubber tires and tubes	\$1,000,000	47	82	77	77	61	47	4,54
Parts and accessories (incl. used vehicles)	\$1,000,000	350	555	662	717	719	855	4,969
Imports of new passenger cars, value	\$1,000,000	21	60	735	513	307	422	4,445
Vehicles scrapped ^{4,5}	1,000	3,234	4,392	5,211	4,927	5,018	n.a.	n.a.
Passenger cars ^{4,5}	1,000	2,598	3,773	4,524	4,344	4,439	n.a.	n.a.
Trucks and buses ^{4,5}	1,000	636	619	687	583	579	n.a.	n.a.
TIRES AND PARTS								
Tires, passenger car:								
Production	1,000	78,598	97,223	102,686	105,274	103,388	118,043	122,500
Shipments	1,000	84,423	93,730	97,339	105,687	104,504	116,830	121,115
Original equipment	1,000	36,678	42,574	29,758	36,278	30,403	37,461	41,375
Replacement	1,000	47,103	50,189	66,795	68,475	73,294	78,430	78,800
Export	1,000	642	966	786	934	807	939	940
Inventory, year-end	1,000	8,050	15,963	23,586	23,593	22,788	24,228	25,613
Tires, truck and bus: ⁷								
Production	1,000	14,156	14,955	15,230	14,483	13,346	15,769	16,750
Shipments	1,000	15,164	14,769	15,076	13,911	13,743	15,754	16,495
Original equipment	1,000	4,671	4,800	4,418	3,925	3,679	4,521	5,060
Replacement	1,000	9,705	9,057	10,014	9,210	9,510	10,623	10,870
Export	1,000	738	912	644	776	554	610	565
Inventory, year-end	1,000	743	2,815	3,857	3,957	3,559	3,612	3,887
Replacement parts and accessories, domestic sales (taxable value) ⁸	\$1,000,000	1,882	1,806	2,250	2,313	2,358	2,771	4,2,900
Replacement auto battery shipments ⁹	1,000	24,442	25,828	27,495	26,320	28,311	30,486	4,31,700
SPECIAL MOTOR-VEHICLE TAXES¹⁰								
Special motor-vehicle taxes	\$1,000,000	4,339	7,212	9,543	10,448	10,531	11,414	4,11,999
Federal excise ¹¹	\$1,000,000	1,470	2,736	3,760	4,397	4,241	4,769	4,5,037
State gross registration receipts ¹²	\$1,000,000	948	1,483	1,826	1,924	1,962	2,060	4,2,175
State gasoline, net ¹²	\$1,000,000	1,687	2,543	3,265	3,396	3,548	3,762	4,3,908
Special city and county ¹³	\$1,000,000	87	159	197	206	230	245	4,279
Bridge, tunnel, ferry, road tolls ¹³	\$1,000,000	157	292	495	524	560	578	4,600
TRAFFIC DEATHS⁶								
Traffic deaths ¹⁴	number	34,763	38,426	37,910	38,200	38,091	40,804	43,400
Noncollision accidents	number	10,600	12,100	11,800	11,900	12,200	12,900	13,500
Collision accidents:								
With other motor vehicles	number	11,650	14,500	14,900	14,800	14,700	16,400	18,000
With pedestrians	number	9,000	8,200	7,850	7,750	7,650	7,900	8,200
With other vehicles or objects	number	3,490	3,605	3,358	3,613	3,542	3,620	3,730
Traffic death rates:								
Per 100,000 population	number	28.0	23.4	21.5	21.2	20.8	22.0	23.0
Per 10,000 motor vehicles	number	7.1	6.1	5.3	5.2	5.0	5.1	5.2
Per 100 million vehicle miles	number	7.6	6.4	5.4	5.3	5.2	5.3	5.4

n.a. Not available.

¹ Source: Exports and imports from Dept. of Commerce. ² Includes business coupes.

³ Excludes station wagons on commercial vehicle chassis. ⁴ Preliminary. ⁵ Estimated.

⁶ Includes Alaska and Hawaii. ⁷ Source: The Rubber Manufacturers Association, Inc.

⁸ Excludes government purchases. Estimates based on Federal excise tax receipts.

⁹ Source: Association of American Battery Manufacturers.

¹⁰ Special taxes on motor-vehicle users. Excludes income and property taxes on motor vehicle, body, parts and tire factories; garages; dealers; repair shops; terminal and truck, including taxicab and bus, operating companies.

¹¹ Source: Dept. of the Treasury and Dept. of Commerce. Includes amounts collected on use of vehicles over 26,000 pounds as follows: 1959, \$35,987,000; 1960, \$44,539,000; 1961, \$59,624,000; 1962, \$89,477,000; 1963, \$110,000,000.

¹² Source: Dept. of Commerce.

¹³ Estimated from data compiled by Dept. of Commerce. "Special city and county" includes parking meter revenues.

¹⁴ Source: National Safety Council. Totals do not equal sum of various types because the estimates generally made only to nearest 10 deaths, and to nearest 50 deaths for certain types.

Source: Automobile Manufacturers Association, Detroit, Mich.; *Automobile Facts and Figures*. Includes data compiled from sources cited in footnotes.

Transportation—Land

No. 779. MOTOR-VEHICLE REGISTRATIONS—STATES: 1930 TO 1963

[In thousands. Includes publicly owned vehicles. For uniformity, figures have been adjusted to a calendar-year basis as registration years in States differ. Figures represent net numbers where possible, excluding registrations and nonresident registrations]

STATE	AUTOMOBILES, TRUCKS, AND BUSES						1963 (prel.)	Motorcycles (incl. offi- cial), 1963		
	1930	1940	1950	1955	1960	Total				
United States ²	26,794	32,525	49,300	62,875	73,769	82,692	68,633	12,874		
Alabama	281	346	686	1,041	1,282	1,456	1,184	262		
Alaska	n.a.	n.a.	n.a.	n.a.	81	93	62	28		
Arizona	112	143	271	415	624	748	580	164		
Arkansas	221	261	477	584	708	830	588	232		
California	2,060	2,808	4,620	6,189	7,799	9,104	7,712	1,272		
Colorado	311	358	564	737	924	1,070	819	234		
Connecticut	334	498	716	921	1,107	1,275	1,128	123		
Delaware	57	73	103	154	192	222	160	60		
District of Columbia	159	165	195	197	206	219	193	19		
Florida	331	503	985	1,616	2,367	2,729	2,372	324		
Georgia	345	510	898	1,239	1,512	1,775	1,439	313		
Hawaii	44	72	188	181	231	271	235	31		
Idaho	120	167	272	338	375	409	276	122		
Illinois	1,646	1,939	2,651	3,268	3,776	4,105	3,594	471		
Indiana	880	1,009	1,435	1,763	2,046	2,253	1,838	394		
Iowa	783	803	1,072	1,195	1,325	1,433	1,149	265		
Kansas	598	859	853	1,048	1,163	1,282	941	321		
Kentucky	334	470	784	1,032	1,198	1,351	1,071	264		
Louisiana	279	372	707	952	1,177	1,301	1,035	246		
Maine	188	209	276	323	374	407	325	76		
Maryland	324	449	685	938	1,155	1,314	1,147	154		
Massachusetts	851	914	1,280	1,546	1,803	1,982	1,765	191		
Michigan	1,338	1,571	2,433	3,114	3,306	3,600	3,149	410		
Minnesota	736	879	1,169	1,365	1,592	1,727	1,413	294		
Mississippi	239	264	484	637	723	822	606	201		
Missouri	766	930	1,261	1,490	1,623	1,900	1,492	388		
Montana	137	196	265	336	361	419	284	127		
Nebraska	428	417	569	662	734	809	606	193		
Nevada	30	46	77	124	175	243	180	55		
New Hampshire	113	137	172	212	256	292	236	48		
New Jersey	861	1,100	1,579	2,061	2,401	2,741	2,431	280		
New Mexico	85	128	238	340	426	483	355	118		
New York	2,330	2,775	3,735	4,643	5,067	5,541	4,918	538		
North Carolina	462	607	1,056	1,437	1,720	1,941	1,386	356		
North Dakota	184	184	276	309	345	375	250	119		
Ohio	1,773	1,942	2,795	3,526	4,087	4,469	3,970	454		
Oklahoma	585	584	831	1,026	1,184	1,333	978	336		
Oregon	255	401	689	802	919	1,014	818	176		
Pennsylvania	1,775	2,168	3,010	3,737	4,287	4,628	4,020	552		
Rhode Island	137	189	251	308	341	373	331	39		
South Carolina	221	343	579	782	879	975	798	158		
South Dakota	206	168	290	325	354	389	277	105		
Tennessee	374	461	858	1,102	1,307	1,493	1,221	249		
Texas	1,378	1,716	2,968	3,869	4,457	5,068	4,000	1,009		
Utah	115	143	247	336	417	486	380	97		
Vermont	87	95	121	136	152	163	130	31		
Virginia	381	509	918	1,243	1,426	1,646	1,381	239		
Washington	452	573	924	1,164	1,377	1,530	1,222	276		
West Virginia	269	309	482	552	601	646	508	128		
Wisconsin	788	913	1,201	1,386	1,600	1,737	1,484	278		
Wyoming	62	88	145	174	207	218	144	69		

¹ n.a. Not available.

² Excludes vehicles owned by military services.

² Beginning 1960, includes Alaska.

³ Includes 2,939 automobiles of the diplomatic corps for 1963.

Motor-Fuel Tax—Fuel Consumption

567

No. 780. FEDERAL AND STATE MOTOR-FUEL TAX—STATES: 1940 TO 1963

[Cents per gallon. Where 2 figures appear in a cell, the former is tax in effect at beginning of year, the latter is tax at end of year. See also *Historical Statistics, Colonial Times to 1957*, series Q 328-329]

STATE	1940	1950	1955	1960	1963 ¹	STATE	1940	1950	1955	1960	1963 ¹
Federal tax	1-1.5	1.5	2	4	4	Mississippi	6	6-7	4 7	4 7	4 7
State average ²	3.96	4.65	5.85	5.94	6.22	Missouri	2	2	3	3	5
Alabama	6	6	6-7	7	7	Montana	5	6	4-7	4 6	4 6
Alaska	(3)	(3)	2-5	5-7	8	Nebraska	4	4.5	45.5-6	6	6
Arizona	5	5	5	5	5-6	New Hampshire	4	4	5	7	7
Arkansas	6.5	6.5	6.5	6.5	6.5	New Jersey	3	3	4	5	6
California	3	4.5	4 6	4 6	4 6	New Mexico	5	7	6	6	6
Colorado	4	6	6	6	6	New York	4	4	4 4	4 6	4 6
Connecticut	3	4	4-6	6	6	North Carolina	6	7	7	7	7
Delaware	4	5	5	5	6	North Dakota	4	4	5-6	6	6
Dist. of Col.	2	4	6	6	6	Ohio	4	4	5	7	7
Florida	7	7	7	7	7	Oklahoma	4	6.5	6.5	6.5	6.5
Georgia	6	7	6-8.5	6.5	6.5	Oregon	5	6	6	6	6
Hawaii	4	4	4-5	5	5	Pennsylvania	4	5	5-6	5	7
Idaho	5.1	6	6	6	6	Rhode Island	3	4	4	6.7	7
Illinois	3	3	5	5	5	South Carolina	6	6-7	7	7	7
Indiana	4	4	4	6	6	South Dakota	4	4	5	4 6	4 6
Iowa	3	4	4-5-6	6	6	Tennessee	7	7	7	7	7
Kansas	3	5	5	5	5	Texas	4	4	4-5	4 5	4 5
Kentucky	5	7	7	7	7	Utah	4	4	5	6	6
Louisiana	7	9	7	7	7	Vermont	4	5	45.5-5	4 6.5	4 6.5
Maine	4	6	6-7	7	7	Virginia	5	6	6	6-7	6 7
Maryland	4	5	6	6	6	Washington	5	6.5	6.5	6.5	7.5
Massachusetts	3	3	5	5.5	6	West Virginia	5	5	5-6	7	7
Michigan	3	3	4.5-6	5.5	6	Wisconsin	4	4	4-6	6	6
Minnesota	4-3	5	5	5	5-6	Wyoming	4	4	4 5	4 5	4 5

¹ As of August 1.

² Weighted average, based on net gallons taxed. Beginning 1960, includes Alaska and Hawaii.

³ No tax. ⁴ Diesel fuel tax differs from gasoline tax.

⁵ State tax rate is 8 cents in Hawaii County and 5 cents in the other counties.

⁶ Trucks or combinations with more than 2 axles pay motor-fuel tax rates of 9 cents per gallon in Kentucky and Virginia. (Prior to July 1, 1960, the tax in Virginia was 8 cents.)

Source: Dept. of Commerce, Bureau of Public Roads; annual report, *Highway Statistics*.

No. 781. MOTOR FUEL CONSUMPTION, BY USE: 1940 TO 1962

[In millions of gallons, except averages. Beginning 1959, includes Alaska and Hawaii. Comprises gasoline and all other fuels under State motor fuel laws. Excludes exports and Federal purchases for military use. Obtained chiefly from reports of State authorities. See *Historical Statistics, Colonial Times to 1957*, series Q 318-329, for highway and nonhighway usage]

ITEM	1940	1945	1950	1955	1958	1959	1960	1961	1962
Total consumption ¹	24,404	22,304	40,280	53,116	59,087	62,226	63,714	65,048	66,636
Highway	22,001	19,149	35,653	47,731	53,418	66,332	57,878	59,306	61,066
Nonhighway	2,087	2,898	4,835	5,171	5,384	5,332	5,229	5,229	4,405
Passenger vehicles	16,769	14,023	25,037	34,319	38,904	40,879	41,996	42,863	44,408
Passenger cars ²	16,323	13,323	24,305	33,548	38,095	40,056	41,169	42,033	43,570
Buses ³	436	700	732	771	809	823	827	830	838
Trucks and combinations	5,156	5,055	10,566	13,308	14,514	15,453	15,882	16,443	17,288
Average gallons consumed per vehicle	680	617	728	759	776	782	777	776	774
Passenger cars ²	594	517	603	644	664	668	661	658	654
Buses ³	3,050	4,300	3,752	3,021	2,096	3,106	3,040	2,957	2,938
Trucks and combinations	1,085	1,020	1,257	1,278	1,301	1,324	1,330	1,338	1,350
Average mileage per gallon consumed per vehicle	13.79	13.05	12.87	12.67	12.44	12.43	12.42	12.44	12.44
Passenger cars ²	15.29	14.95	14.95	14.53	14.30	14.30	14.28	14.38	14.42
Buses ³	6.10	5.48	5.57	5.85	5.33	5.28	5.26	5.30	5.34
Trucks and combinations	9.68	9.08	8.57	8.37	7.96	7.97	7.96	7.82	7.81

¹ Includes losses allowed for evaporation, handling, etc.

² Excludes an estimated 2,400 million gallons of aviation jet fuel.

³ Includes taxicabs and motorcycles. ⁴ Includes school buses.

Source: Dept. of Commerce, Bureau of Public Roads; annual report, *Highway Statistics*.

No. 782. MOTOR-VEHICLE OPERATORS AND CHAUFFEURS LICENSES—STATES: 1962
 [In thousands. Incomplete data for some States]

STATE	Licenses in force ¹	LICENSES ISSUED		STATE	Licenses in force ¹	LICENSES ISSUED	
		Operators	Chauffeurs ²			Operators	Chauffeurs ²
United States	90,705	33,594	4,210	Missouri	2,160	948	185
Alabama	1,302	653	—	Montana	373	182	21
Alaska	97	39	—	Nebraska	921	136	—
Arizona	872	273	42	Nevada	178	64	11
Arkansas	843	812	31	New Hampshire	344	186	62
California	8,542	2,305	35	New Jersey	8 3,044	2,010	(4)
Colorado	1,160	324	38	New Mexico	504	190	83
Connecticut	3,152	794	9	New York	7,267	1,657	320
Delaware	251	81	20	North Carolina	2,116	513	72
District of Columbia	348	123	—	North Dakota	363	27	—
Florida	2,919	2,041	264	Ohio	5,066	1,317	120
Georgia	1,975	1,031	97	Oklahoma	1,291	552	74
Hawaii	3 420	44	4	Oregon	3 994	502	26
Idaho	394	169	18	Pennsylvania	5,816	1,523	—
Illinois	4,647	1,148	306	Rhode Island	431	212	13
Indiana	2,453	1,381	233	South Carolina	3 1,057	92	6
Iowa	1,476	654	155	South Dakota	377	98	—
Kansas	1,292	571	59	Tennessee	1,698	110	8
Kentucky	3 1,335	626	18	Texas	4,881	2,065	972
Louisiana	1,363	590	142	Utah	544	118	12
Maine	457	457	—	Vermont	188	188	—
Maryland	3 1,521	708	57	Virginia	1,950	549	86
Massachusetts	3 2,518	1,204	(4)	Washington	1,455	711	—
Michigan	4,160	1,383	236	West Virginia	805	193	41
Minnesota	3 1,863	389	6 207	Wisconsin	1,986	979	65
Mississippi	809	486	37	Wyoming	216	99	15

¹ Estimated from data reported by States for current and previous years; no allowance made for deaths, emigration, or revocation.

² Includes public service and other special licenses that are issued to operators of vehicles for hire.

³ Chauffeurs' licenses not added to operators' licenses since an operator's license is required in addition to the chauffeur's license.

⁴ Special bus operators' licenses are required; numbers issued not available.

⁵ Includes 10,170 school bus operators' licenses. ⁶ A permit to operate "For hire" vehicles is required.

Source: Dept. of Commerce, Bureau of Public Roads; annual report, *Highway Statistics*.

No. 783. AUTOMOBILE INSURANCE: 1950 TO 1962

[In millions of dollars. Beginning 1960, includes Alaska and Hawaii. 1950, net basis; 1955, direct writing basis; and, beginning 1960, direct premiums earned and direct losses incurred]

YEAR	TOTAL INSURANCE		AUTO. LIABILITY, BODILY INJURY			AUTO. LIABILITY, PROPERTY DAMAGE ¹			PHYSICAL DAMAGE ²			
	Premiums written	Losses paid	Percent losses paid of premiums written	Premiums written	Losses paid	Percent losses paid of premiums written	Premiums written	Losses paid	Percent losses paid of premiums written	Premiums written	Losses paid	Percent losses paid of premiums written
1950	2,625	1,069	40.7	931	396	42.5	482	231	47.9	1,212	442	36.5
1955	4,644	2,122	45.7	1,735	820	47.8	896	415	46.3	2,013	887	43.6
1960	6,489	3,667	56.5	2,842	1,698	59.7	1,259	696	55.3	2,388	1,273	53.3
1961	6,668	3,723	55.8	2,977	1,744	58.6	1,285	708	54.0	2,406	1,274	53.0
1962	6,968	4,059	58.3	3,146	1,850	58.8	1,320	772	58.5	2,502	1,437	57.4

¹ Covers real property against damage by autos.

² Covers auto fire, theft, collision, and comprehensive.

Source: The Spectator, Philadelphia, Pa.; *Insurance Yearbook*, Fire and Casualty Volume; and beginning 1955, Insurance by States Volume.

No. 784. SPEED OF MOTOR VEHICLES: 1945 TO 1963

[Excludes Alaska and Hawaii. Based on actual speed of each vehicle recorded on tangent sections of main rural highways during off-peak hours]

ITEM	1945 ¹	1950	1955	1956	1957	1958	1959	1960	1961	1962	1963
Number of vehicles recorded	1,000	96	280	395	381	344	515	396	459	574	499
Average speed, all vehicles	m. p. h.	44.0	47.6	50.7	50.5	51.4	51.7	52.0	52.6	53.8	55.6
Passenger cars	m. p. h.	45.0	48.7	52.1	51.8	52.6	52.8	53.3	53.8	53.7	55.1
Trucks	m. p. h.	39.8	43.0	45.8	46.2	47.0	47.3	48.2	48.2	49.4	51.1
Buses	m. p. h.	45.5	49.8	52.6	52.3	52.6	53.6	53.5	55.5	55.3	57.7
Vehicles exceeding	40 m. p. h.	percent	64	77	87	87	90	90	92	92	95
	45 m. p. h.	percent	42	58	73	72	75	77	80	80	84
	50 m. p. h.	percent	24	37	51	49	52	55	58	60	70
	55 m. p. h.	percent	11	20	31	30	33	33	37	38	43
	60 m. p. h.	percent	5	8	15	14	15	16	16	18	21

¹ August 15 to December 31.

Source: Dept. of Commerce, Bureau of Public Roads; unpublished data.

Motor-Vehicle Accidents

569

No. 785. DEATHS FROM MOTOR-VEHICLE ACCIDENTS, BY AGE AND SEX: 1962
 [Includes Alaska and Hawaii. Refers only to events occurring within U.S.]

AGE	Both	Male	Female	AGE	Both	Male	Female
	sexes				sexes		
All ages.....	40,804	29,639	11,165	25 to 34 years.....	5,588	4,466	1,122
Under 5 years.....	1,903	1,055	848	35 to 44 years.....	5,113	3,753	1,380
5 to 9 years.....	1,700	1,068	632	45 to 54 years.....	4,615	3,316	1,299
10 to 14 years.....	1,328	964	364	55 to 64 years.....	4,197	2,874	1,323
15 to 19 years.....	4,950	3,737	1,213	65 years and over.....	6,189	4,108	2,086
20 to 24 years.....	5,207	4,291	916	Not stated.....	14	12	2

No. 786. DEATHS FROM MOTOR-VEHICLE ACCIDENTS, BY PLACE OF DEATH AND PLACE OF RESIDENCE: 1950 TO 1962

STATE	BY PLACE OF DEATH						BY PLACE OF RESIDENCE					
	1950	1955	1959	1960	1961	1962	1950	1955	1959	1960	1961	1962
United States ¹	34,763	38,426	37,910	38,137	38,091	40,804	34,763	38,426	37,910	38,137	38,091	40,804
Ala.....	859	859	870	926	935	947	855	864	900	941	956	999
Alaska.....	22	31	34	43	26	39	n.a.	n.a.	32	46	29	42
Ariz.....	333	384	518	507	518	506	278	335	440	418	439	443
Ark.....	365	447	461	449	471	528	383	467	491	466	488	505
Calif.....	3,082	3,524	3,712	3,837	3,941	4,219	3,171	3,609	3,823	3,936	4,057	4,312
Colo.....	415	455	408	443	494	490	408	406	410	459	473	483
Conn.....	287	353	252	303	290	348	291	351	289	293	306	357
Del.....	84	112	90	91	70	99	80	104	79	84	65	91
Dist. of Col.....	102	99	81	82	74	73	134	119	93	95	93	101
Fla.....	882	1,048	1,177	1,303	1,246	1,412	842	977	1,124	1,241	1,284	1,380
Ga.....	928	1,122	1,031	1,079	1,038	1,169	906	1,094	987	1,030	1,005	1,131
Hawaii.....	74	64	89	111	93	91	n.a.	n.a.	110	89	86	
Idaho.....	243	184	232	231	260	208	226	181	219	209	247	274
Ill.....	1,953	1,877	1,660	1,564	1,736	1,786	2,042	1,994	1,724	1,670	1,843	1,908
Ind.....	1,136	1,189	1,168	1,164	1,128	1,239	1,087	1,148	1,109	1,183	1,117	1,187
Iowa.....	620	613	716	644	680	664	634	636	702	639	691	658
Kansas.....	546	613	598	535	572	611	529	587	570	519	549	536
Ky.....	753	907	764	808	758	844	722	862	755	776	706	784
La.....	585	703	810	849	754	778	551	677	802	828	726	765
Maine.....	161	177	144	181	183	187	155	176	149	177	183	192
Md.....	480	500	525	527	455	602	442	498	546	522	449	615
Mass.....	492	621	593	621	604	705	544	675	620	625	646	730
Mich.....	1,627	2,036	1,480	1,634	1,618	1,581	1,692	2,145	1,575	1,702	1,695	1,654
Minn.....	558	613	688	750	761	743	587	632	737	773	754	781
Miss.....	525	562	597	689	597	657	519	544	582	621	581	619
Mo.....	902	1,079	1,014	1,078	991	1,050	942	1,084	1,010	1,057	955	1,028
Mont.....	209	244	255	231	287	264	191	239	248	220	269	230
Nebr.....	317	331	343	310	335	411	305	337	351	295	339	406
Nev.....	122	186	200	182	213	185	81	123	135	148	118	132
N. H.....	103	110	120	103	105	117	96	103	112	107	92	101
N. J.....	715	815	784	764	798	927	646	767	764	763	797	904
N. Mex.....	340	383	482	427	371	455	263	295	382	376	340	373
N. Y.....	1,961	2,163	2,269	2,034	2,246	2,404	2,098	2,310	2,334	2,158	2,324	2,531
N. C.....	1,153	1,222	1,261	1,281	1,316	1,372	1,113	1,217	1,241	1,260	1,317	1,343
N. Dak.....	105	153	175	186	158	181	111	171	167	170	161	190
Ohio.....	1,850	2,089	1,898	1,933	1,631	1,865	1,892	2,137	1,998	1,979	1,674	1,959
Oklahoma.....	504	569	630	636	718	514	510	608	640	684	736	708
Oreg.....	461	434	506	469	507	488	465	434	489	477	520	467
Pa.....	1,656	1,872	1,794	1,685	1,559	1,674	1,744	1,948	1,846	1,701	1,656	1,789
R. I.....	87	94	90	60	71	90	89	98	89	73	68	91
S. C.....	627	696	673	690	707	754	633	679	648	684	679	720
S. Dak.....	198	200	227	241	225	265	196	200	223	236	225	260
Tenn.....	801	968	872	899	872	978	778	913	887	859	795	906
Tex.....	2,499	2,602	2,515	2,316	2,365	2,486	2,498	2,599	2,557	2,372	2,403	2,536
Utah.....	199	211	224	269	243	247	202	192	230	253	241	233
Vt.....	69	87	92	104	94	105	82	82	83	91	90	100
Va.....	929	909	875	782	887	1,013	857	830	806	758	803	939
Wash.....	534	514	576	597	614	635	548	545	620	622	646	657
W. Va.....	400	398	412	371	380	428	422	410	390	380	385	437
Wis.....	857	954	841	926	933	975	806	910	824	917	932	966
Wyo.....	149	145	173	182	163	135	117	114	133	139	125	115

n.a. Not available.

¹ Beginning 1959, includes Alaska, and 1960, Hawaii.

Source of tables 785 and 786: Dept. of Health, Education, and Welfare, Public Health Service; annual report, *Vital Statistics of the United States*.

Transportation—Land

No. 787. VOLUME OF DOMESTIC INTERCITY FREIGHT TRAFFIC, BY TYPE OF TRANSPORTATION: 1940 TO 1962

(In millions of ton-miles, except percent. Airways, beginning 1959, and other types of transportation, beginning 1960, include Alaska and Hawaii, except as noted. A ton-mile is the movement of 1 ton (2,000 pounds) of freight for the distance of 1 mile. Comprises public and private traffic, both revenue and nonrevenue. See also *Historical Statistics, Colonial Times to 1967*, series Q 1-11.)

YEAR	Total traffic, volume	RAILROADS ¹		MOTOR VEHICLES		INLAND WATERWAYS ²		OIL PIPELINES		AIRWAYS ³	
		Volume	Percent of total	Volume	Percent of total	Volume	Percent of total	Volume	Percent of total	Volume	Percent of total
1940	651,204	411,813	63.24	62,043	9.53	118,057	18.13	59,277	9.10	14	0.002
1945	1,072,490	736,184	68.64	66,948	6.24	142,737	13.31	126,530	11.80	91	0.008
1950	1,094,160	628,463	57.44	172,860	15.80	163,344	14.93	129,175	11.81	318	0.020
1951	1,209,099	686,377	56.77	188,012	15.55	182,216	15.07	152,115	12.58	379	0.031
1952	1,172,167	651,276	55.56	194,607	16.60	168,367	14.36	157,502	13.44	415	0.035
1953	1,232,477	642,578	52.14	217,163	17.62	202,439	16.43	169,884	13.78	413	0.034
1954	1,144,033	577,529	50.48	213,225	18.64	173,679	15.18	179,203	15.66	397	0.035
1955	1,298,080	654,573	50.43	223,254	17.20	216,508	16.68	203,244	15.66	481	0.037
1956	1,376,320	676,974	49.19	248,846	18.08	219,978	15.98	229,959	16.71	563	0.041
1957	1,354,012	644,746	47.62	254,174	18.77	231,792	17.12	222,728	16.45	572	0.042
1958	1,281,184	574,756	46.68	255,544	20.76	189,016	15.38	211,289	17.16	579	0.047
1959	1,312,155	599,347	45.68	288,519	21.99	196,559	14.98	226,991	17.30	739	0.056
1960	1,342,174	594,855	44.92	297,662	22.18	220,253	16.41	228,626	17.03	778	0.057
1961	1,342,633	585,558	43.61	313,302	23.33	209,706	15.62	233,172	17.37	805	0.066
1962	1,409,614	615,720	43.68	331,900	23.55	223,089	15.83	237,723	16.86	1,182	0.083

¹ Includes electric railways, express, and mail.

² Includes Great Lakes. Includes Alaska for all years and Hawaii beginning 1959.

³ Domestic revenue service only. Includes express, mail, and excess baggage.

⁴ Part of this increase resulted from coverage of waterways previously existing but not covered.

⁵ Includes Alaska and Hawaii.

Source: Interstate Commerce Commission; *Annual Report*, and Statement No. 6103, *Intercity Ton-Miles, 1939-1959*, April 1961.

No. 788. VOLUME OF DOMESTIC INTERCITY PASSENGER TRAFFIC, BY TYPE OF TRANSPORTATION: 1950 TO 1962

(In millions of passenger-miles, except percent. Airways, beginning 1950, and other types of transportation, beginning 1960, include Alaska and Hawaii. A passenger-mile is the movement of 1 passenger for the distance of 1 mile. Comprises public and private traffic, both revenue and nonrevenue.)

YEAR	Total traffic, volume	RAILROADS ¹		COMMERCIAL MOTOR CARRIERS		PRIVATE AUTOMOBILES		INLAND WATERWAYS ²		AIRWAYS ³	
		Volume	Percent of total	Volume	Percent of total	Volume	Percent of total	Volume	Percent of total	Volume	Percent of total
1950	473,022	32,481	6.87	26,436	5.59	402,843	85.16	1,190	0.25	10,072	2.13
1952	575,345	34,710	6.03	28,704	4.99	495,547	86.13	1,396	0.24	14,988	2.61
1953	608,769	32,261	5.30	28,397	4.66	529,194	88.93	1,487	0.24	17,430	2.86
1954	625,113	29,467	4.71	25,614	4.10	545,763	87.79	1,701	0.27	19,568	3.13
1955	664,510	28,695	4.32	26,519	3.84	586,817	88.16	1,738	0.26	22,741	3.42
1956	696,696	28,610	4.11	25,189	3.62	615,514	88.35	1,860	0.27	25,523	3.06
1957	694,018	26,251	3.78	21,455	3.09	616,254	88.80	1,930	0.30	28,128	4.05
1958	704,452	23,605	3.35	20,756	2.95	629,496	89.36	2,073	0.29	28,522	4.05
1959	736,764	22,373	3.04	20,364	2.76	659,435	89.56	2,026	0.27	32,566	4.42
1960	760,733	21,574	2.84	19,896	2.62	682,617	89.73	2,688	0.35	33,958	4.46
1961	789,174	20,627	2.67	19,703	2.56	692,000	89.97	2,345	0.30	34,599	4.50
1962	801,367	20,181	2.52	21,279	2.66	719,680	89.81	2,736	0.34	37,491	4.68

¹ Includes electric railways.

² Includes Great Lakes.

³ Includes domestic commercial revenue service and private pleasure and business flying.

Source: Interstate Commerce Commission; *Annual Report*, and *Transport Economics*, August 1962.

Revenues—Railroads

571

No. 789. OPERATING REVENUES, BY TRANSPORT AGENCY: 1940 TO 1963

[Excludes Alaska and Hawaii, except as noted]

TRANSPORT AGENCY	1940	1945	1950	1955	1960	1962	1963, ¹
REVENUES (\$1,000,000)							
Pullman Company	60	148	104	95	56	50	48
Electric railways ²	53	87	79	60	23	22	18
Railway Express ³	120	284	223	241	248	271	272
Railroads ⁴	4,450	9,136	9,820	10,495	9,890	9,792	9,803
Waterlines ⁵	113	173	330	452	427	394	378
Pipelines (oil) ⁶	226	304	442	678	770	811	828
Domestic scheduled air carriers ⁷	77	215	558	1,215	2,129	2,498	2,567
Motor carriers of property	898	1,840	3,737	5,535	7,214	8,131	8,314
Motor carriers of passengers ⁸	176	652	539	562	667	729	744
INDEX (1939=100)							
Railroads ⁴	107.7	220.6	237.2	253.5	239.1	236.5	239.5
Pipelines (oil)	106.3	143.2	207.8	318.9	362.5	381.5	400.8
Domestic scheduled air carriers ⁷	137.6	384.1	907.9	2,151.8	3,801.8	4,460.7	n.a. ⁹
Motor carriers of property	109.4	177.5	471.7	698.7	910.6	1,026.4	1,068.3
Motor carriers of passengers	103.6	327.3	318.6	331.2	394.4	431.0	448.3

¹ n.a. ² Not available.

³ 12 months ending June 30.

⁴ Since Jan. 1, 1961, 2 electric railways have been reclassified as class II line-haul railways, 1 as a switching and terminal company, and 1 as a motor carrier; 1 was sold to another railway, and 3 have been abandoned. The result is an overstatement of the electric railway decrease.

⁵ After deducting payments to others for express privileges.

⁶ Includes line-haul and switching and terminal companies. Includes Alaskan and Hawaiian companies beginning 1960.

⁷ Includes only revenues from domestic traffic of carriers subject to the jurisdiction of the Interstate Commerce Commission.

⁸ Source: Federal Aviation Agency; *FAA Statistical Handbook of Aviation*. Includes Hawaii and, beginning 1955, Alaska.

⁹ Excludes motor-carrier revenues of electric railways, included under electric railways.

Source: Interstate Commerce Commission; *Annual Report, Statistics of Class I, II, and III Motor Carriers 1939-1956* (Statement No. 589), and *Transport Economics*, except as noted.

No. 790. RAILROAD COMPANIES, BY CLASS: 1950 TO 1962

[Beginning 1960, includes Alaska and Hawaii. See text, p. 554, for explanation of class limits].

CLASS OF COMPANY	1950	1955	1957	1958	1959	1960	1961	1962
Total	1,038	935	878	855	849	842	824	814
Class I line-haul operating	127	126	110	110	108	106	103	103
Lessors to class I	179	155	142	132	129	128	125	124
Class II line-haul operating	171	155	304	303	303	304	297	292
Lessors to class II	6	8	18	12	12	8	8	8
Class III line-haul operating	166	155	—	—	—	—	—	—
Lessors to class III	9	8	—	—	—	—	—	—
Switching and terminal ¹	253	237	232	226	223	221	219	215
Proprietary ²	100	67	55	52	53	51	50	50
Circular	18	18	19	19	18	21	19	18
Unofficial	9	6	3	1	3	1	2	4

¹ Includes operating, lessor, proprietary, circular, and unofficial companies.

² Excludes those in systems which file consolidated reports combining mileage, investment, and other items on a net system basis.

Source: Interstate Commerce Commission; annual reports, *Statistics of Railways in the United States*, and, beginning 1955, *Transport Statistics in the United States*, Part 1.

No. 791. RAILROADS—SUMMARY STATISTICS: 1930 TO 1962

[As of December 31. Beginning 1960, includes Alaska and Hawaii. Includes intercorporate duplications. See also *Historical Statistics, Colonial Times to 1957*, series Q 44-124]

ITEM	1930	1940	1950	1955	1959	1960	1961	1962
Operating companies ¹ —number—	775	574	471	441	411	407	397	395
Road owned, first track ² —miles—	249,052	233,670	223,779	220,670	217,565	217,552	216,445	215,090
Miles operated: ³								
Total, reporting railroads ⁴ —	429,883	405,075	396,380	390,965	383,912	381,745	379,415	376,200
Road, first track ⁴ —	200,440	245,740	236,857	233,955	230,930	230,169	229,369	227,651
Other main tracks—	42,742	41,373	40,466	38,825	35,746	34,800	33,853	32,719
Yardtrack and sidings—	126,701	118,562	119,067	118,185	117,236	116,776	116,193	115,720
Miles of road operated by receivers or trustees—	9,486	75,270	12,223	11,685	1,097	1,259	2,365	2,113
Equipment:								
Locomotives in service—number—	60,189	44,333	42,951	33,533	31,539	31,178	30,889	30,701
Average tractive effort ⁵ —pounds—	45,225	50,905	57,075	65,005	61,408	61,314	61,969	61,415
Cars in service:								
Passenger-train—number—	53,584	38,308	37,359	32,118	27,419	25,746	24,433	23,430
Freight-train ⁷ —thousands—	2,322	1,684	1,746	1,724	1,708	1,690	1,635	1,581
Average capacity ⁶ —tons—	46.9	50.0	52.6	53.7	55.0	55.4	55.7	56.3
Capital and property investment: ⁸								
Road and equipment, book value ⁹								
Road and equipment, book value ⁹	26,051	25,646	30,174	33,035	35,158	35,513	35,542	34,361
Depreciation reserve ¹⁰ —mil. dol.—	2,361	3,095	6,629	7,314	8,296	8,532	8,793	8,982
Capital outstanding ¹¹ —mil. dol.—	24,331	23,371	20,399	19,309	18,019	17,854	16,830	16,600
Net capitalization—mil. dol.—	19,066	17,630	15,618	15,171	14,287	14,150	13,184	12,908
Stock paying dividends—mil. dol.—	7,702	3,741	6,769	7,300	5,751	5,617	4,362	4,280
Dividends declared—mil. dol.—	603	217	349	476	432	412	385	394
Interest accrued on funded debt								
mil. dol.—	589	547	367	374	390	387	388	376
Income and expenses:								
Operating revenues—mil. dol.—	5,356	4,355	9,587	10,230	9,955	9,642	9,310	9,503
Operating expenses—mil. dol.—	3,994	3,132	7,185	7,724	7,797	7,657	7,362	7,508
Tax accruals—mil. dol.—	354	403	1,212	1,101	1,070	1,020	1,012	920
Operating income—mil. dol.—	1,008	820	1,240	1,404	1,088	964	936	1,130
Net income ⁸ —mil. dol.—	578	243	855	959	608	473	410	600
Passenger service:								
Passenger revenue—mil. dol.—	731	418	815	744	652	641	626	620
Passengers carried—millions—	708	456	488	433	354	327	318	313
Passenger-miles ¹² —millions—	20,876	23,816	31,790	28,548	22,075	21,284	20,308	19,026
Commutation—millions—	6,669	3,997	4,990	4,776	4,529	4,197	4,132	4,046
Coach—millions—	12,485	17,443	17,314	13,704	13,422	12,893	12,737	
Parlor and sleeping car—millions—	7,288	9,398	6,441	3,798	3,643	3,262	3,102	
Revenue per passenger-mile—cents—	2.72	1.76	2.56	2.61	2.96	3.01	3.08	3.11
Average journey per passenger								
miles—	37.96	52.22	65.14	65.88	62.42	65.05	63.79	63.65
Freight service:								
Freight revenue—mil. dol.—	4,145	3,584	7,934	8,665	8,442	8,152	7,859	8,115
Revenue-ton originated—millions—	1,220	1,069	1,421	1,459	1,293	1,301	1,253	1,204
Tons carried one mile—millions—	385,815	375,369	591,550	626,893	573,637	575,360	566,295	595,774
Revenue ton-miles per mile of road								
thousands—	1,481	1,526	2,497	2,679	2,506	2,497	2,461	2,612
Revenue per ton-mile—cents—	1.074	0.955	1.341	1.382	1.459	1.417	1.388	1.362
Haul per ton—miles—	316.21	351.13	416.32	429.75	447.66	442.14	452.00	400.57
Number of employees, average								
thousands—	1,517	1,046	1,237	1,071	828	793	727	711
Compensation of employees								
mil. dol.—	2,589	1,991	4,645	5,045	5,049	4,957	4,684	4,722
Accidents:								
Persons killed—number—	5,665	4,740	3,486	2,849	2,094	2,248	2,127	2,100
Persons injured—number—	49,443	29,606	33,267	27,846	19,909	19,577	27,118	20,880

¹ Line-haul operating.² Excludes all duplications; also excludes some mileage in Canada.³ Includes some duplication under trackage rights and some mileage in Canada.⁴ Excludes circular and unofficial.⁵ 1930-1955 average for steam locomotives only; beginning 1959, all locomotives.⁶ Covers class I railroads, excluding switch and terminal companies. ⁷ Excludes cabooses. ⁸ Includes lessors. ⁹ Increase in investment over a period of years cannot be obtained accurately by subtraction of 1 year's investment from that of another owing to reorganization, sale or abandonment, reclassification, etc. Includes lessor companies and proprietary companies except those which are part of systems filing consolidated annual reports.¹⁰ For 1950 and later years, includes amortization of defense projects and proprietary companies.¹¹ Comprises actually outstanding, nominally issued, and nominally outstanding securities, and equipment obligations. ¹² Class I railroads.Source: Interstate Commerce Commission; annual report, *Transport Statistics in the United States*, Part 1, and *Accident Bulletin*.

Railroads

573

No. 792. RAILROADS—MILES OF ROAD OWNED, STATES: 1940 TO 1962

[As of December 31. Data are for actual length of line in each State without duplication]

STATE	1940	1950	1960	1962	STATE	1940	1950	1960	1962
U.S.	234,398	224,371	217,552	215,090	S.A.—Con.				
N.E.	6,677	6,396	6,088	5,926	W. Va.	3,831	3,719	3,681	3,649
Maine	1,882	1,830	1,784	1,717	N.C.	4,668	4,435	4,310	4,269
N.H.	1,002	936	854	835	S.C.	3,466	3,223	3,284	3,266
Vt.	919	889	811	804	Ga.	6,334	6,043	5,854	5,733
Mass.	1,793	1,726	1,633	1,591	Fla.	5,218	4,793	4,655	4,593
R.I.	194	185	181	159	E.S.C.	16,179	15,574	15,233	15,162
Conn.	887	830	825	820	Ky.	3,691	3,641	3,526	3,525
M.A.	20,175	19,180	17,469	16,992	Tenn.	3,573	3,471	3,402	3,375
N.Y.	7,739	7,493	6,463	6,255	Ala.	4,996	4,723	4,646	4,632
N.J.	2,108	1,992	1,914	1,857	Miss.	3,919	3,739	3,659	3,630
Pa.	10,328	9,695	9,092	8,880	W.S.C.	31,497	29,771	28,341	28,107
E.N.C.	41,281	39,851	38,949	38,448	Ark.	4,482	4,104	3,872	3,836
Ohio	8,501	8,418	8,322	8,193	La.	4,357	4,079	3,937	3,925
Ind.	6,889	6,652	6,593	6,533	Oklahoma	6,302	5,977	5,777	5,683
Ill.	11,949	11,643	11,201	11,034	Tex.	16,356	15,611	14,755	14,663
Mich.	7,303	6,803	6,640	6,520	Mt.	23,518	22,101	21,355	21,183
Wis.	6,639	6,335	6,193	6,168	Mont.	5,149	5,059	4,962	4,954
W.N.C.	48,293	47,108	46,367	45,926	Idaho	2,746	2,713	2,685	2,685
Minn.	8,421	8,333	8,174	8,057	Wyo.	2,008	1,925	1,882	1,882
Iowa	8,950	8,585	8,561	8,470	Colo.	4,552	4,273	3,786	3,786
Mo.	7,042	6,735	6,582	6,533	N. Mex.	2,812	2,496	2,473	2,360
N. Dak.	5,266	5,256	5,194	5,195	Ariz.	2,228	2,197	2,184	2,150
S. Dak.	4,006	3,958	3,920	3,909	Utah	2,082	1,788	1,736	1,733
Nebr.	6,044	5,800	5,721	5,603	Nev.	1,941	1,650	1,647	1,634
Kans.	8,564	8,441	8,215	8,159	Pac.	17,303	16,466	16,388	16,275
S.A.	29,475	27,924	27,362	27,071	Wash.	5,243	5,124	4,987	4,984
Del.	295	295	293	293	Oreg.	3,385	3,217	3,174	3,168
Md.	1,367	1,309	1,141	1,135	Calif.	7,947	7,533	7,630	7,646
D.C.	35	34	31	31	Alaska	536	567	572	572
Va.	4,261	4,073	4,113	4,102	Hawaii	192	25	25	25

Source: Interstate Commerce Commission; annual reports, *Statistics of Railways in the United States*, and, beginning 1960, *Transport Statistics in the United States*, Part 1.

No. 793. RAILROADS (CLASS I)—FUEL AND POWER CONSUMED AND RAILS AND TIES LAID: 1950 TO 1962

[No class I railroads in Alaska and Hawaii. Line-haul railroads only. See text, p. 554, for explanation of change in class limit beginning 1956. See *Historical Statistics, Colonial Times to 1957*, series Q 128-137, for related data.]

ITEM	1950	1955	1959	1960	1961	1962
Fuel and power consumed:						
Coal	1,000 short tons	55,452	11,427	300	39	9
Fuel oil	1,000,000 gal.	2,284	376	82	89	94
Diesel oil	1,000,000 gal.	1,827	3,393	3,484	3,472	3,382
Electricity	1,000,000 kwh	2,260	2,082	1,748	1,641	1,652
Rails and ties laid:						
Rails (replacement and betterment)	1,000 short tons	2,454	1,890	1,012	915	768
Ties (in previously constructed tracks):						
Crossties	1,000	30,494	24,149	16,423	14,319	12,019
Switch and bridge ties	1,000 board ft.	98,400	79,098	54,378	49,902	50,187

Source: Interstate Commerce Commission; *Annual Report*.

Transportation—Land

No. 794. RAILROADS—EQUIPMENT IN SERVICE: 1950 TO 1962

[Beginning 1960, includes Alaska and Hawaii. See also *Historical Statistics, Colonial Times to 1957*, series Q 53-65]

ITEM	1950	1955	1958	1959	1960	1961	1962
Locomotives.....	42,951	33,533	31,616	31,539	31,178	30,889	30,701
Steam.....	26,680	6,266	1,488	871	374	210	136
Electric.....	827	639	562	517	498	484	441
Diesel.....	15,396	26,563	29,515	30,097	30,240	30,123	30,057
Other.....	48	65	51	54	66	72	67
New units installed ¹	3,215	1,087	346	855	389	288	764
Freight cars ²	1,745,778	1,723,747	1,755,775	1,708,116	1,690,396	1,635,342	1,581,213
Box.....	718,150	723,982	731,437	714,789	700,331	672,524	647,602
Gondola and hopper.....	874,801	845,809	871,081	840,802	831,478	804,440	778,187
Other.....	152,827	153,976	153,257	152,525	158,592	158,378	155,424
Aggregate capacity ¹1,000 tons.....	90,405	91,229	94,486	92,264	91,948	89,292	87,223
Average capacity ¹tons.....	52.6	53.7	54.8	55.0	55.4	55.7	56.3
New units installed ¹	40,032	29,070	34,120	42,507	54,032	20,279	20,237
Passenger-train cars.....	37,359	32,118	28,909	27,419	25,746	24,433	23,430
Coaches.....	16,488	13,543	11,984	11,121	10,287	9,840	9,482
Average seating capacity ¹	75	75	76	76	76	76	77
Baggage, express, and other non-passenger.....	13,817	13,388	10,672	10,244	10,077	9,728	9,356
Other.....	7,054	5,187	6,393	6,054	5,382	4,865	4,642
New units installed ¹	1,078	412	143	66	251	214	204
Air-conditioned cars ³	16,747	14,784	13,675	12,998	11,787	11,289	10,423

¹ Class I railroads. ² Excludes caboose cars. ³ Class I railroads and Pullman Company.Source: Interstate Commerce Commission; annual report, *Transport Statistics in the United States*, Part 1.

No. 795. RAILROADS (CLASS I)—REVENUES, EXPENSES, INCOME, AND CAPITAL EXPENDITURES: 1950 TO 1963

[In millions of dollars. No class I railroads in Alaska and Hawaii. See text, p. 554, for explanation of change in class limits beginning 1956. See also *Historical Statistics, Colonial Times to 1957*, series Q 103-117]

ITEM	1950	1955	1958	1959	1960	1961	1962	1963 (prel.)
Operating revenues.....	9,473	10,107	9,565	9,825	9,517	9,187	9,440	9,560
Freight.....	7,817	8,539	8,071	8,312	8,028	7,737	7,991	8,146
Passenger.....	813	743	675	651	640	625	619	588
Mail.....	374	287	328	330	331	342	344	339
Express.....	81	118	91	116	100	83	82	80
Other.....	387	420	399	416	417	401	404	407
Operating expenses.....	7,059	7,641	7,544	7,705	7,566	7,271	7,417	7,452
Maintenance.....	2,995	3,172	2,944	3,034	2,952	2,802	2,898	2,914
Way and structures.....	1,287	1,387	1,223	1,236	1,192	1,118	1,154	1,183
Equipment.....	1,708	1,785	1,720	1,798	1,760	1,684	1,743	1,732
Traffic.....	192	236	252	259	258	248	252	252
Transportation, rail line.....	3,491	3,768	3,834	3,888	3,833	3,711	3,755	3,771
Miscellaneous operations.....	110	108	92	86	82	77	77	71
General.....	271	357	422	438	441	433	436	448
Net revenue from railway operations.....	2,414	2,466	2,021	2,120	1,951	1,916	2,023	2,108
Tax accruals.....	1,195	1,081	957	1,048	999	992	906	886
Operating income.....	1,219	1,385	1,064	1,073	952	924	1,117	1,221
Net railway operating income.....	1,040	1,129	762	748	585	538	727	806
Ratio of expenses to revenues (percent).....	74.5	75.6	78.9	78.4	79.5	79.1	78.6	77.9
Expenditures for capital improvements.....	1,065	908	738	818	919	646	833	1,044
Equipment.....	779	568	480	568	633	427	593	785
Roadway and structures.....	286	340	258	250	286	219	240	269

Source: Interstate Commerce Commission; *Annual Report*.

No. 796. RAILROADS (CLASS I)—SELECTED FREIGHT STATISTICS: 1950 TO 1963
 [No class I railroads in Alaska and Hawaii. Excludes switching and terminal roads. Tons of 2,000 pounds. See text, p. 554, for explanation of change in class limits beginning 1956]

ITEM	1950	1955	1960	1961	1962	1963
Average miles of road operated.....	225,339	222,295	219,665	218,396	217,554	216,639
Operating revenue.....	7,817	8,538	8,029	7,716	7,991	8,146
Per ton-mile.....	1.33	1.37	1.40	1.37	1.35	1.31
Per ton per road.....	3.04	3.25	3.51	3.52	3.50	3.44
Revenue-tones:						
Originated.....	1,354	1,393	1,241	1,194	1,234	1,273
Carried.....	2,570	2,625	2,287	2,191	2,283	2,371
Carried 1 mile.....	588,578	628,615	572,321	561,837	592,544	621,659
Miles per revenue-ton per road (average haul).....	229.0	237.6	250.2	256.5	259.5	262.2
Freight train miles.....	515	476	405	386	398	400
Freight train car-miles:						
Loaded, revenue and nonrevenue.....	19,044	20,090	17,287	16,648	16,990	17,133
Empty.....	10,140	11,054	10,872	10,641	10,753	10,992
Net ton-miles per train-mile ²	1,224	1,374	1,466	1,507	1,557	1,604
Net ton-miles per loaded car-mile ²	31.7	32.1	34.0	34.7	35.7	37.1
Train-miles per train-hour.....	16.8	18.6	19.5	19.9	20.0	20.1

¹ Data cover first 3 months only. ² Revenue and nonrevenue freight.

Source: Interstate Commerce Commission; annual report, *Transport Statistics in the United States*, Part 1.

No. 797. RAILROADS (CLASS I)—FREIGHT ORIGINATED AND FREIGHT REVENUE, BY COMMODITY GROUPS: 1950 TO 1963

[No class I railroads in Alaska and Hawaii. Carload freight only, except as specified. See text, p. 554, for explanation of change in class limits beginning 1956. See also *Historical Statistics, Colonial Times to 1957*, series Q 73-80]

COMMODITY GROUP	1950	1955	1959	1960	1961	1962	1963 ¹
REVENUE FREIGHT ORIGINATED (1,000,000 short tons)							
Total.....	1,354	1,396	1,232	1,241	1,194	1,234	273
Agricultural products.....	129	134	146	150	154	155	35
Livestock and livestock products.....	14	13	10	9	9	9	2
Mining products.....	747	762	633	649	616	635	130
Coal and coke.....	420	394	344	338	326	337	83
Other.....	327	368	289	311	289	298	47
Forest products.....	79	83	80	79	75	78	19
Manufactures and miscellaneous ²	374	398	359	349	337	354	86
All less-than-carload freight.....	11	7	4	3	3	2	(3)
GROSS FREIGHT REVENUE (\$1,000,000)							
Total.....	8,146	8,938	8,704	8,402	8,114	8,385	1,390
Agricultural products.....	1,055	1,133	1,228	1,192	1,172	1,184	269
Livestock and livestock products.....	276	294	243	229	217	210	49
Mining products.....	1,994	2,121	1,978	1,969	1,883	1,915	425
Coal and coke.....	1,301	1,281	1,172	1,140	1,104	1,132	279
Other.....	693	841	806	830	759	784	147
Forest products.....	581	687	708	651	628	647	150
Manufactures and miscellaneous ²	3,888	4,421	4,365	4,207	4,109	4,348	1,077
All less-than-carload freight.....	353	281	184	153	125	100	19

¹ Data cover first 3 months only. ² Includes forwarder traffic. ³ Less than 500,000 short tons.

Source: Interstate Commerce Commission; annual report, *Transport Statistics in the United States*, Part 1.

No. 798. RAILROADS (CLASS I)—CARS OF REVENUE FREIGHT LOADED, BY PRINCIPAL COMMODITIES: 1940 TO 1963

[In thousands. Figures are 52-week totals. No class I railroads in Alaska and Hawaii. See text, p. 554, for explanation of change in class limits beginning 1956]

YEAR	Total	Grain and grain products	Livestock	Coal	Coke	Forest products	Ore	Miscellaneous	Mdse., less than carload	Cars loaded with highway trailers
1940.....	36,358	1,835	685	6,820	549	1,800	2,148	14,842	7,679	-----
1945.....	41,918	2,734	894	8,296	695	2,039	2,474	19,258	5,529	-----
1950.....	38,903	2,466	491	7,240	727	2,226	2,529	18,955	4,269	-----
1955.....	37,636	2,633	441	6,508	616	2,275	2,846	19,087	3,230	168
1958.....	30,222	2,874	307	5,522	343	1,853	1,752	15,242	2,329	278
1959.....	31,015	2,725	300	5,426	411	2,050	1,685	16,326	2,112	417
1960.....	30,441	2,786	259	5,318	403	1,950	2,209	15,707	1,809	554
1961.....	28,590	2,847	223	5,086	345	1,867	1,739	15,030	1,453	591
1962.....	28,722	2,774	210	5,269	356	1,866	1,728	15,323	1,166	706
1963.....	28,867	2,806	164	5,535	387	1,870	1,765	15,472	868	797

Source: Association of American Railroads, Car Service Division, Washington, D.C.; annual report, *Cars of Revenue Freight Loaded*. Weekly reports are published currently.

Transportation—Land

No. 799. RAILROADS (CLASS I)—SELECTED PASSENGER STATISTICS: 1950 TO 1963

[No class I railroads in Alaska and Hawaii. See text, p. 554, for explanation of change in class limits beginning 1950. See also *Historical Statistics, Colonial Times to 1957*, series Q 87-89]

ITEM	1950	1955	1960	1962	1963 (prel.)
Average miles of road operated-----	150,349	119,545	93,816	86,302	84,928
Pasenger revenue-----\$1,000	813,417	742,945	640,057	618,811	587,840
Revenue per passenger-mile:					
Including commutation passengers... cents	2.56	2.60	3.01	3.11	3.18
Excluding commutation passengers... cents	2.46	2.70	3.03	3.10	3.18
Revenue passengers carried-----1,000	480,194	431,999	325,677	311,698	309,603
Revenue passenger-miles-----millions	31,760	28,523	21,261	19,905	18,497
Revenue passenger-miles per train-mile-----	88.5	95.2	100.9	102.6	97.3
Revenue passenger-miles per car-mile-----	17.0	17.8	19.3	20.0	19.6
Average journey per passenger per road miles-----	65.3	66.1	65.3	63.9	59.7
Passenger-train miles-----1,000	357,618	298,002	210,635	193,988	190,025
Passenger-carrying car-miles-----1,000	1,854,737	1,570,916	1,101,021	996,403	943,443
Train-miles per train-hour-----	37.4	39.8	40.7	40.9	40.9

Source: Interstate Commerce Commission; *Annual Report*, and *Transport Statistics in the United States*, Part 1.

No. 800. RAILROADS—EMPLOYEES, HOURS, AND COMPENSATION: 1950 TO 1963

[Beginning 1960, Alaska and Hawaii included in "All operating carriers." Excludes switching and terminal roads. See also *Historical Statistics, Colonial Times to 1957*, series Q 141-142]

YEAR	ALL OPERATING CARRIERS		CLASS I CARRIERS ¹					
	Average number of employees	Total yearly compensation (\$1,000)	Average number of employees	Total hours (1,000)	Total yearly compensation (\$1,000)	Average hours per employee	Average compensation	
							Per hour ²	Per year
1950-----	1,236,879	4,644,890	1,220,401	2,876,591	4,594,423	2,357	\$1.60	\$8,765
1955-----	1,071,387	5,045,278	1,057,866	2,502,608	4,992,235	2,366	2.00	4,719
1958-----	853,196	4,990,638	840,575	1,980,583	4,929,906	2,356	2.49	5,805
1959-----	827,718	5,048,524	815,474	1,924,500	4,986,253	2,360	2.59	6,115
1960-----	793,071	4,956,902	780,494	1,840,590	4,893,558	2,358	2.66	6,270
1961-----	727,148	4,683,563	717,543	1,698,704	4,623,982	2,367	2.72	6,444
1962-----	711,000	4,721,895	700,146	1,672,389	4,662,065	2,389	2.79	6,659
1963 (prel.)-----	n.a.	n.a.	680,039	1,640,829	4,629,566	2,413	2.82	6,808

n.a. Not available. ¹ See text, p. 554, for explanation of change in class limits beginning 1950.

² Calculated for all classes of employees, including those not paid on an hourly basis.

Source: Interstate Commerce Commission; annual reports, *Statistics of Railways in the United States* and, beginning 1955, *Transport Statistics in the United States*, Part 1.

No. 801. RAILROAD ACCIDENTS—PERSONS KILLED AND INJURED, BY STATUS: 1950 TO 1963

[As of December 31. Beginning 1960, includes Alaska and Hawaii. Covers all reportable accidents. Statistics are not strictly comparable. Accidents causing damage to railroad property, with or without a casualty, were classified as train accidents in 1950 if they were \$275 or over, and beginning 1955, \$350 or over. See also *Historical Statistics, Colonial Times to 1957*, series Q 143-152]

YEAR	TOTAL		PASSENGERS ^{1,2}		EMPLOYEES		TRESPASSERS		OTHER PERSONS ²	
	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured
1950-----	3,486	33,267	180	3,419	392	22,586	1,245	1,133	1,669	6,129
1955-----	2,849	27,846	24	2,253	282	19,011	897	817	1,646	5,765
1958-----	2,311	19,343	61	1,628	187	13,305	711	660	1,352	3,750
1959-----	2,094	19,900	10	1,352	173	14,203	641	619	1,265	3,735
1960-----	2,248	19,577	32	1,463	198	13,710	617	564	1,401	3,840
1961-----	2,127	27,118	17	1,887	145	20,194	624	678	1,341	4,350
1962-----	2,108	26,880	27	2,109	190	19,733	617	678	1,272	4,306
1963 (prel.)-----	2,139	27,453	13	2,135	165	19,428	571	657	1,390	5,233

¹ Data cover passengers on trains and travelers not on trains. ² Casualties sustained in nontrain accidents included with "Other persons." Nontrain accidents are those not caused directly by operation or movement of trains, locomotives, or cars, but attributable to shop machinery or use of tools and apparatus that result in reportable casualties.

Source: Interstate Commerce Commission; annual report, *Accident Bulletin*.

Railroads—Intercity Bus

577

No. 802. HIGHWAY GRADE CROSSINGS—NUMBER AND ACCIDENTS: 1950 TO 1963

[Beginning 1960, includes Alaska and Hawaii. Covers all railroads, except as noted. Excludes casualties due to suicide, mental derangement, and attempt to escape custody. See also headnote, table 801. See also *Historical Statistics, Colonial Times to 1957*, series Q 125-127]

YEAR	HIGHWAY GRADE CROSSINGS ¹			ACCIDENTS				
	Total	Specially protected ²	Eliminated by separation of grades	Number	All persons		Involving motor vehicles	
					Number killed	Number injured	Persons killed	Persons injured
1950	227,364	35,968	61	4,000	1,576	4,368	1,393	4,206
1955	226,318	39,060	84	3,846	1,446	4,014	1,313	3,886
1958	225,938	41,155	78	3,099	1,271	3,161	1,129	3,026
1959	225,304	41,720	130	3,075	1,203	3,247	1,055	3,123
1960	224,513	42,267	102	3,195	1,364	3,424	1,254	3,277
1961	223,735	42,256	100	3,204	1,291	3,514	1,168	3,288
1962	221,653	42,903	132	3,149	1,241	3,192	1,122	3,075
1963 (prel.)	n.a.	n.a.	n.a.	3,400	1,301	3,557	1,217	3,435

n.a. Not available. ¹ Class I railroads only.

² Includes crossings with operated gates or watchmen, or both, during at least part of day; and those with audible or visible signals, or both. Excludes those with fixed signs only.

Source: Interstate Commerce Commission; annual reports, *Accident Bulletin, Statistics of Railways in the United States*, and, beginning 1955, *Transport Statistics in the United States*, Part 1.

No. 803. PULLMAN COMPANY OPERATIONS: 1930 TO 1963

[Excludes Alaska and Hawaii. See also *Historical Statistics, Colonial Times to 1957*, series Q 138-140]

YEAR	Average miles of road over which operations conducted	Revenue-passenger miles ¹ (millions)	Employees, annual average	YEAR	Average miles of road over which operations conducted	Revenue-passenger miles ¹ (millions)	Employees, annual average
1930	129,578	12,516	26,165	1957	85,068	5,388	14,890
1935	112,117	7,146	20,436	1958	79,555	4,300	10,234
1940	109,595	8,214	20,877	1959	71,448	3,462	8,020
1945	95,765	27,276	41,601	1960	67,467	3,358	7,320
1950	102,722	10,558	22,820	1961	63,035	3,046	6,688
1955	89,124	6,882	18,061	1962	61,278	2,905	6,392
1958	87,472	6,630	16,793	1963	59,798	2,516	5,902

¹ Beginning 1940, includes operations on Canadian and Mexican railroads; excludes chartered car operations.

Source: Interstate Commerce Commission; annual reports, *Statistics of Railways in the United States*, and, beginning 1955, *Transport Statistics in the United States*, Part 2.

No. 804. INTERCITY BUS LINES—SUMMARY OF OPERATIONS: 1960 TO 1963

[Excludes Alaska and Hawaii]

ITEM	1960	1961	1962 estimate	1963 estimate
Operating companies	1,550	1,550	1,550	1,450
Buses	24,530	25,830	26,550	26,800
Miles of highway served (Dec. 31) ¹	238,000	239,000	240,000	240,000
Employees (Dec. 31) ²	48,800	49,800	51,000	51,600
Total bus miles	1,000,000	1,177	1,203	1,250
Revenue passengers	1,000,000	456.8	482.2	466.0
Revenue passenger-miles	1,000,000	19,900	19,700	21,300
Operating revenue, all services	\$1,000	584,400	609,600	662,300
Operating expenses	\$1,000	522,700	543,400	579,800
Net operating revenue before income taxes	\$1,000	61,700	66,200	82,500
Taxes assignable to operations ³	\$1,000	56,000	58,700	62,300

¹ Includes duplication between carriers. ² Operating companies only. ³ Excludes income taxes.

Source: National Association of Motor Bus Owners, Washington, D.C.; *Bus Facts*.

No. 805. TRANSIT INDUSTRY—SUMMARY: 1940 TO 1962

[Money figures in millions of dollars, except as noted. Beginning 1960, includes Alaska and Hawaii. Comprises all privately and publicly owned organized local passenger transportation agencies except taxicabs, suburban railroads, and sightseeing and school buses. Covers (a) local motorbus lines, (b) electric street railways, (c) elevated and subway lines, (d) interurban electric railways and (e) trolley coach lines. Based on financial and statistical reports received by American Transit Association from transit companies representing more than 85 percent of the industry. See also *Historical Statistics, Colonial Times to 1957*, series Q 330-340.]

ITEM	1940	1945	1950	1955	1958	1959	1960	1961	1962
Operating companies	n.a.	1,253	1,406	1,483	1,300	1,272	1,251	1,247	1,205
Motorbus companies ¹	n.a.	1,164	1,354	1,450	1,282	1,255	1,236	1,244	1,202
Miles of route operated (Dec. 31):									
Electric railway—single track	19,602	17,702	10,813	6,197	3,844	3,445	3,143	2,601	2,557
Surface	18,380	16,480	9,590	4,976	2,600	2,200	1,900	1,355	1,312
Subway and elevated	1,242	1,222	1,223	1,221	1,244	1,245	1,243	1,246	1,245
Trolley coach—negative overhead wire	1,925	2,313	3,513	3,428	2,723	2,491	2,196	2,017	1,849
Motorbus—route round trip	78,000	90,400	98,000	99,800	104,500	106,300	108,700	111,500	114,300
Passenger vehicles owned (Dec. 31):									
Electric railway cars	75,464	89,758	86,310	73,089	67,149	65,780	65,292	64,012	63,045
Surface	37,662	36,377	22,986	14,532	12,201	11,983	11,866	11,419	11,084
Subway and elevated	26,630	26,160	13,228	5,300	3,108	2,988	2,856	2,341	2,219
Trolley coaches	11,032	10,217	9,758	9,232	9,093	9,000	9,010	9,078	8,865
Motorbuses	2,802	3,711	6,504	6,157	4,848	4,297	3,826	3,593	3,161
Investment (Dec. 31):									
Electric railway	4,096	4,262	3,918	3,821	3,781	3,854	3,937	3,919	4,002
Surface	3,588	3,620	3,060	2,902	2,870	2,938	3,003	2,967	3,042
Subway and elevated	1,574	1,570	913	616	373	378	367	235	229
Trolley coach	2,014	2,050	2,147	2,286	2,497	2,560	2,636	2,732	2,813
Motorbus	58	76	144	160	139	125	117	115	106
Operating finances:									
Operating revenue	737	1,380	1,452	1,426	1,350	1,376	1,407	1,390	1,403
Electric railway	466	710	578	440	366	365	360	366	366
Surface	328	560	362	176	99	98	88	80	73
Subway and elevated	128	149	216	264	267	272	282	286	293
Trolley coach	25	68	122	131	103	91	82	79	76
Motorbus	256	603	752	856	881	920	956	945	961
Operating expenses	598	1,067	1,297	1,277	1,266	1,266	1,290	1,296	1,306
Percent of revenue	81.1	77.3	89.3	89.6	93.8	92.0	91.7	93.2	93.0
Net revenue	139	313	155	149	84	110	117	94	98
Taxes (all)	63	165	89	93	77	85	87	77	77
Operating income	76	149	66	56	7	26	31	17	20
Percent of revenue	10.4	10.8	4.6	3.9	0.5	1.9	2.2	1.2	1.4
Revenue vehicle-miles operated									
Electric railway—millions	2,596	3,254	3,008	2,448	2,201	2,159	2,143	2,077	2,047
Surface—millions	1,316	1,398	907	561	476	470	466	455	448
Subway and elevated	845	940	463	178	90	81	75	69	62
Trolley coach—millions	471	458	443	383	387	389	391	385	387
Motorbus—millions	86	133	206	177	131	112	101	93	84
Motorbus—millions	1,195	1,722	1,895	1,710	1,594	1,577	1,576	1,530	1,515
Passengers carried									
Electric railway—millions	13,098	23,254	17,246	11,529	9,732	9,557	9,395	8,883	8,695
Surface—millions	8,325	12,124	6,168	3,077	2,387	2,349	2,313	2,289	2,233
Subway and elevated	5,943	9,426	3,904	1,207	572	521	463	434	393
Trolley coach—millions	2,382	2,698	2,264	1,870	1,815	1,828	1,850	1,855	1,890
Motorbus—millions	534	1,244	1,658	1,202	843	749	657	601	547
Motorbus—millions	4,239	9,886	9,420	7,250	6,502	6,459	6,425	5,993	5,865
Revenue passengers carried									
Electric railway—millions	10,504	18,982	13,845	9,189	7,778	7,650	7,521	7,242	7,122
Surface—millions	6,464	9,636	4,903	2,586	2,050	2,025	2,005	2,003	1,988
Subway and elevated	4,183	7,081	2,790	845	415	378	335	323	284
Trolley coach—millions	2,282	2,555	2,113	1,741	1,635	1,647	16,70	1,680	1,704
Motorbus—millions	419	1,001	1,261	869	593	517	447	405	361
Motorbus—millions	3,620	8,345	7,681	5,734	5,135	5,108	5,059	4,834	4,773
Number of employees (average)	203,000	242,000	240,000	198,000	165,000	159,100	156,400	151,800	149,100
Electric railway	123,000	129,200	90,900	66,000	49,000	47,700	46,500	43,700	43,200
Trolley coach	6,000	8,500	15,400	16,000	12,000	10,700	9,400	8,600	7,600
Motorbus	74,000	104,300	133,700	116,000	104,000	100,700	100,500	99,500	98,300
Payroll	360	632	835	864	831	832	857	856	878
Average annual earnings per employee	1,773	2,612	3,479	4,364	5,036	5,229	5,481	5,642	5,889

n. a. Not available.

¹ Comprises companies operating motor buses exclusively and companies with combined services such as trolley coach and motorbus, etc.Source: American Transit Association, New York, N.Y.; annual report, *Transit Fact Book*.

Intercity Motor Carriers

579

No. 806. CLASS I INTERCITY MOTOR CARRIERS OF PROPERTY—SUMMARY OF FINANCIAL AND OPERATING STATISTICS: 1950 TO 1962

[All money figures in millions of dollars, except averages. Excludes Alaska and Hawaii. See text, p. 554, for explanation of change in class limits beginning 1957.]

ITEM	1950	1955	1960	1961	1962
Number of carriers reporting	1,621	2,244	935	972	1,004
Investment in carrier operating property	748	1,515	1,992	2,093	2,266
Reserve for depreciation and amortization	309	736	998	1,098	1,177
Income statement:					
Operating revenue	2,380	4,030	4,763	4,908	5,428
Common carrier	2,181	3,622	4,384	4,583	5,072
Contract carrier	144	294	239	183	210
Other operating revenue	55	114	141	142	147
Expenses	2,215	3,870	4,645	4,718	5,204
Operation and maintenance expenses	1,968	3,497	4,151	4,209	4,646
Depreciation and amortization ¹	84	157	202	210	221
Operating taxes and licenses ²	103	216	291	298	337
Operating rents, net	59	n.a.	n.a.	n.a.	n.a.
Operating ratio (percent expenses of operating revenue)	93.1	98.0	97.5	96.1	95.9
Net operating revenue	165	160	119	191	224
Lease of distinct operating unit, net	1	1	1	2	2
Other income, less income deductions	6	14	56	55	58
Net income before income taxes	159	146	81	156	184
Net income after income taxes	93	82	37	84	112
Dividend appropriations and withdrawals ³	23	29	24	28	27
Operating statistics and averages:					
Owned revenue vehicles ⁴	191,243	288,668	279,305	284,522	298,206
Intercity vehicle-miles	5,352	7,559	7,203	7,028	7,567
Tons of intercity revenue freight carried	1,000	313,533	275,518	289,078	320,840
Miles per owned vehicle	53,833	53,008	59,590	58,068	62,917
Revenue per vehicle-mile (intercity)	\$0.43	\$0.52	\$0.64	\$0.67	\$0.70
Expense per vehicle-mile (intercity) ⁵	\$0.41	\$0.51	\$0.65	\$0.65	\$0.69

^{n.a.} Not available.

¹ Amortization represents a very small part of this total.

² Excludes Federal and State income taxes.

³ Withdrawals of sole proprietors and partners.

⁴ Excludes equipment used under lease, including operations conducted under "purchased transportation" arrangements.

⁵ Includes duplications on account of tonnage received from connecting motor carriers.

⁶ Basic figures include expenses of operating vehicles in local services not available separately.

No. 807. CLASS I INTERCITY MOTOR CARRIERS OF PROPERTY—SELECTED OPERATING STATISTICS, BY REGIONS: 1961 AND 1962

[Money figures in millions of dollars. Excludes Alaska and Hawaii. See text, p. 554, for explanation of change in class limits, beginning 1957. Regions: 1, Conn., Maine, Mass., N.H., R.I., Vt.; 2, Del., D.C., Md., N.J., N.Y., Pa., W. Va.; 3, Ill., Ind., Mich. (Lower Pen.), Ohio; 4, Ala., Fla., Ga., Ky., Miss., N.C., S.C., Tenn., Va.; 5, Mich. (Upper Pen.), Minn., N. Dak., S. Dak., Wis.; 6, Iowa, Kans., Mo., Nebr.; 7, Ark., La., Okla., Tex.; 8, Colo., Idaho, Mont., N. Mex., Utah, Wyo.; 9, Ariz., Calif., Nev., Oreg., Wash.]

REGION AND YEAR	Number of carriers reporting	Operating revenue	Total expenses	OWNED REVENUE VEHICLES ¹				Inter-city vehicle-miles (millions)	EMPLOYEES ²	
				Trucks	Truck-tractors	Semi-trailers	Full trailers		Average number	Compensation
1961	972	4,908	4,718	30,346	87,790	163,070	3,319	7,022	323,508	2,138
1. New England	60	198	190	1,986	3,508	5,791	—	189	16,292	102
2. Middle Atlantic	192	851	826	5,252	15,103	29,882	54	1,088	59,933	386
3. Central	271	1,500	1,449	4,207	24,223	48,820	665	2,159	87,988	606
4. Southern	153	769	735	5,069	15,591	26,706	335	1,289	54,274	336
5. Northwestern	50	261	250	1,594	5,338	8,651	—	376	17,638	118
6. Midwestern	64	298	291	1,650	5,424	10,394	33	445	19,027	129
7. Southwestern	71	367	335	3,080	7,086	10,924	2	601	24,447	154
8. Rocky Mountain	26	217	201	1,652	3,357	6,588	329	312	13,477	94
9. Pacific	85	459	442	4,956	8,156	15,314	1,901	562	30,482	214
1962	1,004	5,428	5,204	31,462	91,212	172,531	3,001	7,567	343,215	2,379
1. New England	65	217	211	1,851	3,710	6,194	—	202	16,488	109
2. Middle Atlantic	203	943	913	5,983	16,055	32,473	150	1,170	63,680	433
3. Central	271	1,655	1,587	3,973	24,212	48,257	714	2,350	90,436	661
4. Southern	156	850	806	6,127	16,751	30,704	169	1,370	59,326	383
5. Northwestern	53	308	295	1,751	5,801	9,849	—	428	19,639	138
6. Midwestern	59	326	321	1,992	5,884	11,218	98	473	20,840	141
7. Southwestern	74	391	367	2,787	7,042	11,013	8	638	25,695	169
8. Rocky Mountain	34	263	238	1,654	3,287	6,668	291	353	15,486	112
9. Pacific	89	485	468	5,344	8,470	16,155	1,371	582	31,625	232

¹ See footnote 4, table 806.

² Excludes drivers of equipment engaged to perform "purchased transportation" service.

Transportation—Land

No. 808. CLASS I INTERCITY MOTOR CARRIERS OF PASSENGERS—SUMMARY OF FINANCIAL AND OPERATING STATISTICS: 1950 TO 1962

[All money figures in millions of dollars, except average fare and revenue per vehicle-mile. Excludes Alaska and Hawaii. See headnote, table 808. Excludes carriers subject to ICC jurisdiction engaged predominantly in local or suburban service and carriers engaged in transportation of both property and passengers.]

ITEM	1950	1955	1960	1961	1962
Number of carriers reporting	172	146	143	144	151
Investment in carrier operating property	286	373	466	481	563
Reserve for depreciation and amortization	144	197	257	261	286
Income statement:					
Operating revenue	351	362	403	485	589
Passenger revenue	325	315	382	396	485
Special bus revenue	12	22	36	38	47
Other operating revenue	15	25	45	50	56
Expenses	315	331	405	423	511
Operation and maintenance expenses	255	270	334	351	426
Depreciation and amortization ²	27	27	29	28	34
Operating taxes and licenses ³	29	30	36	38	44
Operating rents, net	4	3	6	6	7
Operating ratio (percent expenses of operating revenue)	89.7	91.4	87.5	87.2	86.8
Net operating revenue	36	31	58	62	77
Other income, less income deductions	1	2	3	3	2
Net income before income taxes	35	29	55	59	75
Net income after income taxes	19	16	28	31	43
Dividend appropriations and withdrawals ⁴	16	23	3	8	5
Operating statistics and averages:					
Passenger vehicles owned, end of year	13,200	11,547	10,946	11,036	13,873
Vehicle-miles of owned and leased passenger vehicles ⁵	1,000	958,530	859,207	843,239	864,830
Number of revenue passengers carried	1,000	389,898	293,244	267,507	260,211
Miles per vehicle ⁶	65,411	64,128	65,587	66,480	67,142
Average fare per passenger, per carrier, intercity service	\$1.01	\$1.37	\$2.12	\$2.20	\$2.30
Passenger revenue per vehicle-mile, regular route intercity	\$0.35	\$0.38	\$0.49	\$0.49	\$0.52
Expense per vehicle-mile ⁷	\$0.33	\$0.38	\$0.48	\$0.40	\$0.51

¹ Regular route intercity and local revenue. ² Amortization represents a very small part of this total.

³ Excludes Federal and State income taxes. ⁴ Withdrawals of sole proprietors and partners.

⁵ Includes bus-miles of vehicles operated under "purchased transportation" arrangements.

⁶ Averages for owned and leased vehicles. ⁷ See footnote 6, table 806.

No. 809. CLASS I INTERCITY MOTOR CARRIERS OF PASSENGERS—SELECTED OPERATING STATISTICS, BY REGIONS: 1961 AND 1962

[Excludes Alaska and Hawaii. See headnote, table 808; for description of regions, see headnote, table 807]

REGION AND YEAR	Number of carriers reporting	Operating revenue (\$1,000)	Total expenses (\$1,000)	PASSENGER VEHICLES		REGULAR-ROUTE INTERCITY			EMPLOYEES	
				Total ¹	Inter-city ²	Vehicle-miles (1,000)	Revenue-passenger-carried (1,000)	Average fare per passenger, per carrier (1,000)	Average number	Compensation (\$1,000)
1961	144	484,529	422,580	12,742	11,339	750,791	168,371	\$2.20	34,875	208,686
1. New England	10	16,709	16,011	747	267	15,806	5,205	1.53	4,170	8,400
2. Middle Atlantic	40	56,121	53,063	1,956	1,520	65,690	31,711	1.16	4,139	23,938
3. Central	23	101,928	89,412	2,054	1,964	154,086	37,773	2.25	7,623	47,480
4. Southern	20	102,293	86,605	2,472	2,441	174,576	41,068	1.98	7,067	40,558
5. Northwestern	4	1,908	1,609	73	73	3,438	488	2.47	115	668
6. Midwestern	8	65,439	55,475	1,314	1,314	109,182	16,081	3.33	4,268	27,150
7. Southwestern	22	46,246	39,484	2,036	2,024	91,272	15,081	2.28	3,519	17,894
8. Rocky Mountain	10	6,935	6,232	350	348	12,638	2,155	2.28	5,573	2,915
9. Pacific	7	86,961	74,600	1,740	1,388	124,103	18,808	3.47	5,921	40,277
1962	151	588,557	511,103	15,549	10,077	787,293	176,493	2.30	41,961	260,333
1. New England	14	19,365	18,363	781	314	19,088	6,141	1.57	1,726	9,407
2. Middle Atlantic	42	119,968	115,430	4,592	1,335	85,612	44,529	1.05	10,752	63,224
3. Central	25	109,100	93,604	2,075	1,878	150,117	30,269	2.88	7,541	49,340
4. Southern	19	110,127	90,812	2,400	2,184	180,041	41,614	2.08	7,137	42,433
5. Northwestern	4	1,997	1,649	76	65	3,412	491	2.54	116	690
6. Midwestern	8	72,916	59,910	1,359	1,182	114,755	16,882	3.54	4,182	28,114
7. Southwestern	21	50,108	42,628	2,093	1,314	90,291	15,174	2.42	3,648	19,144
8. Rocky Mountain	10	7,363	6,472	351	303	12,476	2,207	2.31	3,609	3,107
9. Pacific	8	97,614	82,235	1,822	1,502	131,501	19,184	3.79	6,250	44,874

¹ Comprises average number operated in intercity service during year and number owned in local operations at close of year.

² Comprises vehicles owned, leased, and operated under "purchased transportation" arrangements, operated in intercity revenue service.

Source of tables 808 and 809: Interstate Commerce Commission; annual report, *Transport Statistics in the United States*, Part 7.

Petroleum Pipelines

581

No. 810. PETROLEUM PIPELINE COMPANIES—SUMMARY OF SELECTED FINANCIAL DATA: 1930 TO 1962

In thousands of dollars, except miles of line operated. Beginning 1960, includes Alaska and Hawaii.
See *Historical Statistics, Colonial Times to 1957*, series Q 342, for miles of line operated.]

YEAR	Miles of line operated	Investment in carrier property	Other investments	Total current assets	Pipeline operating revenues	Pipeline operating expenses	Pipeline operating income	Net income
1930	88,727	772,711	96,184	133,428	237,910	99,363	121,816	123,741
1935	92,037	763,009	119,071	46,949	197,368	89,364	79,586	78,249
1940	100,156	841,977	64,095	47,163	225,760	101,919	82,558	79,867
1944	111,615	1,000,741	62,767	104,150	310,194	172,368	67,840	65,715
1945	113,351	1,042,523	86,713	115,370	304,268	191,668	67,127	65,941
1946	116,544	1,106,454	69,991	103,819	293,723	183,869	56,485	56,094
1947	119,298	1,225,168	56,455	126,621	325,224	214,682	54,415	53,145
1948	124,092	1,381,402	52,168	168,020	377,034	252,971	58,806	56,070
1949	124,954	1,497,579	78,285	175,458	376,452	249,368	63,282	57,743
1950	128,580	1,655,973	100,798	192,291	441,627	254,701	89,047	81,303
1951	131,457	1,821,880	70,011	232,851	523,973	200,144	91,285	82,006
1952	132,715	2,064,405	107,412	322,677	562,268	310,311	111,053	96,650
1953	133,900	2,311,885	95,970	301,185	591,130	324,935	128,043	109,046
1954	138,962	2,501,330	67,451	315,731	617,463	331,834	149,845	124,409
1955	140,374	2,585,565	80,679	352,762	677,605	346,985	176,257	153,334
1956	142,686	2,716,234	82,463	367,633	737,386	370,787	188,272	178,457
1957	145,236	2,843,034	75,912	364,258	729,952	386,661	182,392	159,197
1958	144,354	2,948,508	104,855	347,369	720,670	389,678	190,748	161,838
1959	149,159	3,196,909	128,608	383,973	765,232	406,140	211,276	182,815
1960	151,908	3,299,501	113,504	393,028	770,417	417,640	198,911	169,398
1961	153,737	3,406,830	92,398	432,146	786,718	419,884	214,616	180,698
1962	155,053	3,518,420	81,817	432,084	810,605	426,363	227,030	203,800

Source: Interstate Commerce Commission; annual reports, *Statistics of Oil Pipe-Line Companies*, and, beginning 1955, *Transport Statistics in the United States*, Part 6.

No. 811. PETROLEUM PIPELINES—OIL TRANSPORTED: 1950 TO 1962

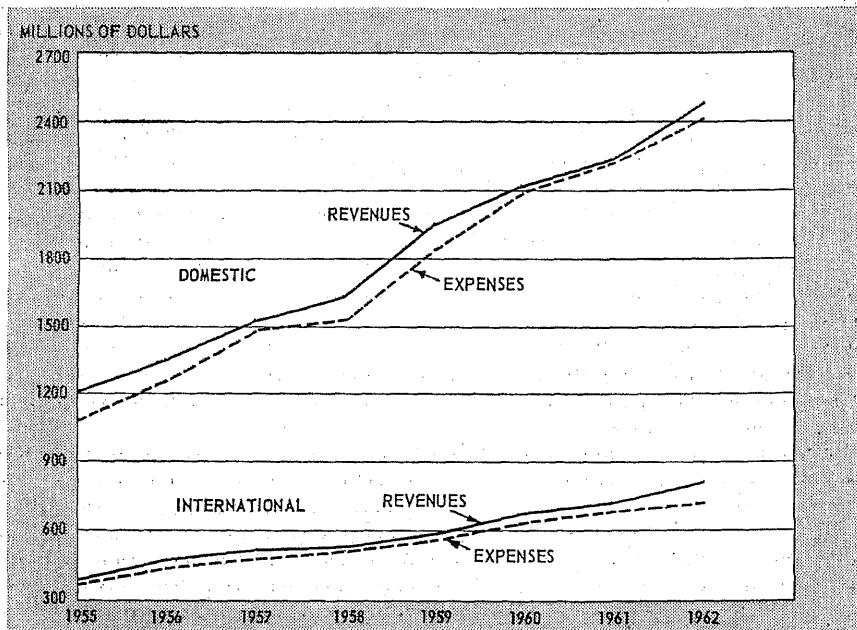
[Beginning 1960, includes Alaska and Hawaii. See *Historical Statistics, Colonial Times to 1957*, series Q 343-344, for oil originated]

ITEM	1950	1955	1958	1959	1960	1961	1962
Number of companies	76	84	82	85	87	89	92
Mileage operated	128,589	140,374	144,354	149,159	151,908	153,737	155,053
Gathering lines	47,593	50,645	49,787	49,567	49,401	49,656	48,063
Trunk lines	80,996	89,729	94,567	99,592	102,567	104,081	106,990
Oil transported (million bbls.):							
Total received into system	2,766	4,058	4,318	4,665	4,783	4,941	5,123
From connecting carriers	944	1,434	1,543	1,634	1,636	1,639	1,666
Crude oil	879	1,299	1,361	1,423	1,402	1,402	1,411
Refined oils	65	134	182	211	234	237	254
Originated	1,822	2,624	2,775	3,031	3,147	3,302	3,457
Crude oil	1,525	2,038	2,018	2,182	2,239	2,336	2,379
Refined oils	297	586	757	849	909	966	1,078
Total delivered out of system	2,740	4,059	4,317	4,650	4,783	4,923	5,109
To connecting carriers	937	1,444	1,509	1,624	1,639	1,646	1,624
Crude oil	874	1,329	1,345	1,403	1,400	1,392	1,353
Refined oils	63	115	165	221	240	254	271
Terminated	1,803	2,595	2,807	3,035	3,144	3,277	3,485
Crude oil	1,510	1,992	2,034	2,201	2,253	2,331	2,428
Refined oils	293	603	773	834	891	946	1,057
Trunk-line movement (million bbls.):							
Crude oil	1,977	2,781	2,947	3,083	3,091	3,108	3,213
Refined oils	360	717	935	1,055	1,124	1,191	1,322
Trunk-line barrel-miles (billions):							
Crude oil	577	839	905	980	976	996	998
Refined oils	107	205	260	284	304	317	347

Source: Interstate Commerce Commission; annual reports, *Statistics of Oil Pipe-Line Companies*, and, beginning 1955, *Transport Statistics in the United States*, Part 6.

FIG. XXXV. OPERATING REVENUES AND EXPENSES OF SCHEDULED AIR CARRIERS:
1955 TO 1962

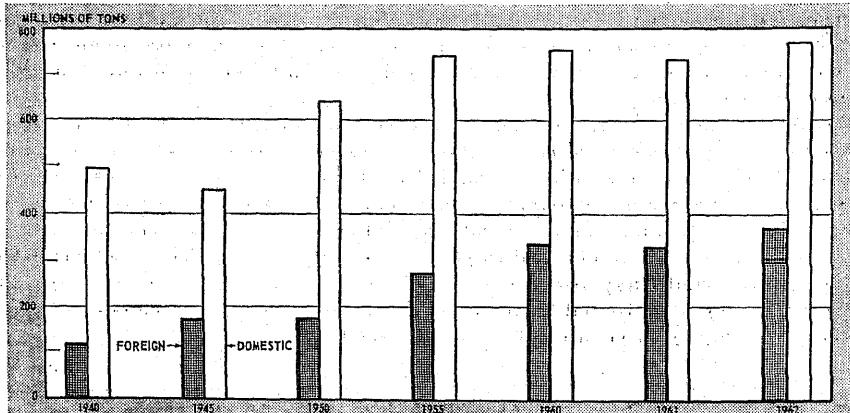
[See table 815]



Source: Chart prepared by Dept. of Commerce, Bureau of the Census. Data from Federal Aviation Agency.

FIG. XXXVI. WATERBORNE COMMERCE OF THE UNITED STATES: 1940 TO 1962

[See table 826]



Source: Chart prepared by Dept. of Commerce, Bureau of the Census. Data from Dept. of the Army, Corps of Engineers.

Section 22

Transportation—Air and Water

This section presents statistics on civil air transportation, both passenger and cargo, and on water transportation, including inland waterways, oceanborne commerce, the merchant marine, cargo and vessel tonnages, and shipbuilding. The principal sources of these data are the annual *FAA Statistical Handbook of Aviation*, issued by the Federal Aviation Agency; the annual *Waterborne Commerce of the United States* and the *Annual Report of the Chief of Engineers*, Part 2, issued by the Corps of Engineers of the Department of the Army; the monthly and annual *U.S. Waterborne Foreign Trade*, issued by the Bureau of the Census; and the annual *Merchant Marine Statistics*, issued by the Bureau of Customs.

Data on air transportation are also presented in *Air Transport Facts and Figures*, published annually by the Air Transport Association of America. Additional sources of data on water transportation include *A Statistical Analysis of the World's Merchant Fleets*, issued periodically by the Maritime Administration of the Department of Commerce; *The Bulletin*, issued monthly by the American Bureau of Shipping; and the *Annual Summary of Merchant Ships Launched in the World* and the *Register Book* published by Lloyd's Register of Shipping, London, England. A basic source for historical data is *Foreign Commerce and Navigation of the United States*, issued annually through 1946 by the Bureau of the Census.

Data relating to merchandise exports and imports, their classification, dollar values, and countries of origin and destination are in section 31, Foreign Commerce and Aid.

Civil aviation.—Federal promotion and regulation of civil aviation are carried out by two bodies—the Federal Aviation Agency and the Civil Aeronautics Board. The Board issues certificates permitting persons to engage in air transportation as a business, fixes air mail rates which they may charge, and may establish maximum and minimum rates for transportation of passengers and goods. It also has the duty of investigating accidents in air transportation.

The principal activities of the Federal Aviation Agency are: Controlling the use of navigable airspace; prescribing regulations dealing with the competency of airmen, airworthiness of aircraft, and air traffic control; operation of air route traffic control centers, airport traffic control towers, and flight service stations; the design, construction, maintenance, and inspection of navigation, traffic control, and communications equipment for the airways; and promotion of air safety.

These agencies publish annual operational data on the use of airway facilities; data related to the location of airmen, aircraft, and airports; the activity volume in the field of non-aircarrier (general aviation) flying; and aircraft production and registration data by type of equipment.

Vessel shipments, entrances, and clearances.—Shipments by dry cargo vessels comprise shipments on all types of watercraft except tanker vessels; shipments by tanker vessels comprise all types of cargo, liquid and dry, carried by tanker vessels.

A vessel is reported as entered at the first port which it enters in the United States, regardless of whether any cargo is unladen at that port. A vessel is reported as cleared from the last port where outward cargo is completed or where the vessel cleared in ballast. Army and Navy vessels entering or clearing without commercial cargo and vessels touching at a United States port in distress, or for other temporary causes without discharging cargo, are not included in the figures.

Units of measurement.—Cargo tonnage and shipping weight both represent the gross weight of the cargo including the weight of containers, wrappings, crates, etc. Other tonnage figures generally refer to stowing capacity of vessels, 100 cubic feet being called 1 ton. Gross tonnage comprises the space within the frames and the ceiling of the hull, together with those closed-in spaces above deck available for cargo, stores, passengers, or crew, with certain minor exceptions. Net or registered tonnage is the gross tonnage less the spaces occupied by the propelling machinery, fuel, crew quarters, master's cabin, and navigation spaces. It represents substantially space available for cargo and passengers. The net tonnage capacity of a ship may bear little relation to weight of cargo. Dead-weight tonnage is the weight in long tons required to depress a vessel from light water line (that is, with only the machinery and equipment on board) to load line. It is therefore the weight of the cargo, fuel, etc., which a vessel is designed to carry with safety.

Alaska and Hawaii.—Statements specifying inclusion or exclusion of figures for Alaska and Hawaii appear in the headnotes to each table unless the inclusion or exclusion is self-evident.

Historical statistics.—Tabular headnotes provide cross-references, where applicable, to *Historical Statistics of the United States, Colonial Times to 1957*. See preface.

Civil Flying

585

No. 812. SUMMARY OF CIVIL FLYING: 1940 TO 1963

[As of Dec. 31 or for years ending Dec. 31. Includes Alaska and Hawaii, except as noted. General aviation flying excludes civil flying performed by public carriers—scheduled, supplemental, contract, or intrastate. See also *Historical Statistics, Colonial Times to 1957*, series Q 376-383 and Q 394-397]

ITEM	1940	1950	1955	1960	1961	1962	1963
Airports in operation ¹ -----	2,331	6,403	6,839	6,881	7,715	8,084	8,814
General ² -----			2,713	3,026	3,274	n.a.	n.a.
Limited and restricted ² -----			4,126	3,855	4,441	n.a.	n.a.
Lighted airports-----	776	1,670	1,247	2,133	2,299	2,481	2,678
Miles of Federal airways ³ -----	32,100	70,253	148,979	178,924	185,447	186,794	187,191
Equipped with low/medium frequency radio aids-----	32,100	70,253	67,770	36,879	14,543	10,559	9,038
Equipped with very high frequency radio aids-----			81,209	142,045	120,904	126,235	128,153
Total civil aircraft ^{3,4} -----	17,928	92,809	85,320	111,580	117,904	124,273	129,975
Active aircraft-----	n.a.	60,921	60,432	78,760	82,853	86,287	87,267
Aids to air navigation (Federal airways): ⁵ -----							
Radio range stations-----	292	749	768	1,030	1,045	960	927
Low/medium frequency-----	290	378	344	305	285	188	104
Very high frequency-----	2	371	424	725	760	777	823
Nondirectional radio beacons-----	48	141	175	190	177	222	278
Airport towers-----		172	100	153	184	270	277
Airways centers-----	11	31	31	35	36	35	25
Combined station/towers-----			75	75	70	68	68
Flight service stations-----	365	451	364	335	338	336	336
Instrument landing systems-----	1	96	157	191	216	228	237
Certified airplane pilots-----	69,829	n.a.	643,201	783,232	804,707	830,220	848,742
Airline transport-----	1,431	n.a.	13,700	20,985	22,042	23,220	23,887
Commercial-----	18,791	n.a.	211,142	262,437	268,707	275,495	281,225
Private-----	49,607	n.a.	418,339	499,810	513,988	531,505	543,630
Other certified airmen:							
Glider pilots-----	138	n.a.	3,659	4,974	4,109	4,660	5,130
Mechanics-----	11,177	n.a.	91,001	115,688	118,689	122,180	124,945
Parachute riggers-----	444	n.a.	2,859	2,936	3,127	3,400	3,669
Ground instructors-----	1,948	n.a.	27,080	29,421	29,526	29,964	30,295
Hours flown (general aviation) ⁶ -----	1,000	3,200	9,650	9,500	12,203	12,650	13,450
Business ⁷ -----	1,000	314	2,750	4,300	5,300	5,300	4,654
Commercial ⁸ -----	1,000	387	1,500	1,950	2,200	2,450	2,663
Instructional-----	1,000	1,529	3,000	1,275	1,700	1,670	1,829
Personal-----	1,000	970	2,300	1,975	2,950	3,160	4,022
Other-----	1,000		100		53	70	282
Miles flown (general aviation) ⁶ -----	1,000	264,000	1,061,500	1,216,000	1,645,000	1,728,000	1,851,000
Business ⁷ -----	1,000	25,910	339,700	627,800	811,000	827,000	880,000
Commercial ⁸ -----	1,000	31,961	180,500	245,700	281,000	316,000	339,000
Instructional-----	1,000	126,264	286,600	120,650	184,000	182,000	195,000
Personal-----	1,000	79,865	244,100	221,850	362,000	395,000	423,000
Other-----	1,000		10,000		7,000	8,000	8,000
Fuel consumed (general aviation): ⁹ -----							
Gasoline-----	1,000 gal.	22,400	131,200	190,000	268,160	279,700	288,161
Oil-----	1,000 gal.	660	2,916	3,450	4,325	4,370	4,503
Aircraft accidents (general aviation)-----							
Aircraft destroyed-----		3,471	4,505	3,343	4,793	4,625	4,840
Substantial damage-----		433	1,627	798	n.a.	n.a.	n.a.
Minor and no damage-----		2,505	2,947	2,509	n.a.	n.a.	n.a.
Degree of injury to persons in aircraft accidents (general aviation):							
Fatal-----		359	871	619	787	761	857
Severe-----		327	546	347	n.a.	n.a.	n.a.
Minor and no injury-----		4,744	6,268	4,974	n.a.	n.a.	n.a.

n.a. Not available.

¹ Existing airports and airfields recorded with FAA. "Limited" includes seaplane bases and heliports.
² Includes military airports with joint civil and military use. Airport type definitions: General use—airports serving as regular, alternate, or provisional stops for scheduled and large irregular carriers; non-air-carrier airports offering minimum of services such as fuel and regular attendant during normal working hours; and airports operating seasonally which qualify under above definition. Limited use—airports available to public but not equipped to offer minimum services. Restricted use—use by general public prohibited except in case of forced landing or by previous arrangement. Beginning 1962, data on airports not available as to use.

³ United States and outlying areas. ⁴ Includes gliders.

⁵ Prior to 1960, excludes Alaska and Hawaii. ⁶ Preliminary.

⁷ Corporation and individual business transportation, not for hire.
⁸ Passenger and cargo transportation for hire, aerial application (crop dusting, spraying, seeding, etc.), patrol, survey, and other miscellaneous work use.

Source: Federal Aviation Agency; *F.A.A. Statistical Handbook of Aviation*. Includes data from Civil Aeronautics Board.

No. 813. SCHEDULED PASSENGER/CARGO AIR CARRIERS—SUMMARY OF OPERATIONS: 1940 TO 1963

[As of Dec. 31 or for years ending Dec. 31, except as noted. Hawaii included with domestic carriers and outlying areas with international, all years. Intra-Alaska included with domestic carriers and Mainland-Alaska with international, as follows: Number of operators and traffic data, beginning 1950; fuel and financial data, beginning 1955; and personnel data, beginning 1960. See also *Historical Statistics, Colonial Times to 1957*, series Q 352 and Q 354-362.]

ITEM	1940	1950	1955	1960	1961	1962	1963
Number of operators: ¹							
Domestic	19	48	40	39	39	37	37
International	3	6	7	10	8	8	8
Total personnel employed	22,051	82,786	122,203	164,644	166,403	169,073	n.a.
Domestic	15,984	61,903	95,548	134,546	136,987	138,673	n.a.
International	6,067	20,883	26,655	30,098	29,506	30,400	n.a.
Route miles in operation ²	95,079	183,841	196,274	249,717	258,012	248,865	247,044
Domestic ³	42,757	77,440	78,992	101,414	107,814	105,104	105,209
International ³	52,322	106,401	117,282	148,303	150,198	143,761	142,075
Aircraft in operation ⁴	437	1,220	1,409	1,822	1,771	1,733	1,747
Fixed wing	437	1,209	1,390	1,797	1,752	1,713	1,727
Four-engine			679	1,141	1,122	1,115	1,084
Turbo jet				202	302	376	405
Turboprop				8	181	192	177
Piston				671	758	628	592
Twin-engine	n.a.	n.a.	709	651	626	596	590
Turbo jet					17	20	20
Turboprop					46	49	50
Piston			709	605	580	530	520
Single engine			2	5	4	2	53
Helicopter			11	19	25	19	20
Average available seats: ⁵							
Domestic	16.5	37.5	51.2	65.5	72.9	79.4	83.4
International	18.3	41.0	56.4	89.9	108.7	118.7	124.8
Average speed (miles per hour):							
Domestic	n.a.	180	208	235	253	274	287
International	n.a.	218	244	307	357	394	423
Fuel consumed:							
Gasoline	1,000 gal.	74,535	572,246	1,170,240	1,127,006	871,111	787,101
Domestic	1,000 gal.	65,075	418,442	911,748	922,480	743,418	695,717
International	1,000 gal.	8,860	153,804	258,492	204,526	127,693	91,384
Jet fuel, domestic	1,000 gal.			1,827	988,003	1,462,561	1,932,309
International	1,000 gal.				342,513	556,797	722,101
Oil	1,000 gal.	1,288	6,675	14,161	15,545	11,473	9,947
Domestic	1,000 gal.	1,104	5,007	11,418	12,688	9,777	8,640
International	1,000 gal.	184	1,668	2,743	2,857	1,696	1,298
Revenue-miles flown (all scheduled services)	1,000	119,753	458,087	762,777	983,390	956,466	999,194
Domestic	1,000	110,101	364,256	627,336	820,756	795,169	827,694
International	1,000	9,652	93,831	135,441	162,634	161,297	171,500
Revenue passengers carried: 1,000		6,2,965	19,019	41,709	62,256	63,012	67,816
Domestic	1,000	6,2,523	17,345	38,221	56,352	56,900	60,737
International	1,000	163	1,675	3,488	5,904	6,112	7,079
Revenue passenger-miles flown:							
Domestic	1,000,000	1,052	8,003	19,852	30,557	31,062	33,623
International	1,000,000	100	2,206	4,499	8,306	8,760	10,138
Average passenger-mile rate:							
Domestic	\$0.0507	\$0.0555	\$0.0536	\$0.0609	\$0.0628	\$0.0644	\$0.0617
International	.0883	.0728	.0666	.0635	.0608	.0587	.0582
Express and freight, ton-miles flown:							
Domestic	1,000	n.a.	212,811	326,344	578,518	671,306	819,328
International	1,000	3,478	152,223	229,966	386,933	454,142	554,599
International	1,000	n.a.	60,588	96,378	191,585	217,164	264,729
Mail, ton-miles flown:							
Domestic	1,000	10,118	47,740	88,751	135,923	150,452	166,801
International	1,000		26,228	53,390	103,335	144,804	172,017

n.a. Not available. ¹ Excludes all-cargo operators.

² Not compiled for intra-Alaska.

³ 1940, domestic is average for December, international as of Dec. 31; 1950-1963, based on fourth quarter.

⁴ Represents aircraft of the certificated route air carriers; excludes those used for crew training and general utility purposes, and those held for disposal. Beginning 1955, excludes aircraft operated by the scheduled all-cargo carriers.

⁵ Obtained by dividing passenger seat-miles by revenue-miles flown in passenger service.

⁶ Data for domestic passengers include duplication.

⁷ Excludes freight flown by certificated all-cargo operators and irregular carriers.

Source: Federal Aviation Agency; *F.A.A. Statistical Handbook of Aviation*. Includes data from Civil Aeronautics Board.

Scheduled Air Carriers

587

No. 814. SCHEDULED PASSENGER/CARGO AIR CARRIERS—ACCIDENTS: 1940 TO 1963

[For years ending December 31. Hawaii included with domestic carriers and outlying areas with international, all years. Beginning 1960, intra-Alaska included with domestic carriers and Mainland-Alaska with international. Represents revenue operations accidents and, beginning 1960, includes military contract operations. See also *Historical Statistics, Colonial Times to 1957*, series Q 384-393.]

ITEM	1940	1950	1955	1960	1961	1962	1963 (prel.)
DOMESTIC							
Total accidents	29	36	41	62	56	35	42
Fatal accidents	3	4	8	110	5	5	4
Total fatalities	45	109	221	363	135	183	64
Passenger fatalities	35	96	195	326	124	158	48
Crew fatalities	10	13	26	37	11	25	16
Passengers carried	1,000	3,039	17,424	38,027	52,392	55,713	63,925
Passenger-miles flown	1,000,000	1,158	8,363	20,551	31,852	32,548	36,237
Passenger-fatalities per 100 million passenger-miles flown ²		3.0	1.1	0.8	0.9	0.4	0.3
INTERNATIONAL							
Total accidents	6	5	5	5	2	8	6
Fatal accidents		2	1	2			1
Total fatalities		56	4	15			81
Passenger fatalities		48	2	10			73
Crew fatalities		8	2	5			8
Passengers carried	1,000	170	1,678	3,417	5,495	5,699	7,513
Passenger-miles flown	1,000,000	104	2,338	4,601	8,633	9,154	10,566
Passenger-fatalities per 100 million passenger-miles flown			2.1	(8)	0.1		0.6

¹ Includes 2 midair collisions nonfatal to air carrier occupants; excluded in computation of fatal accidents.

² Fatality rates exclude passenger deaths occurring in dynamite accidents: Nov. 1, 1955, 39 passengers; Jan. 6, 1960, 29 passengers; May 22, 1962, 37 passengers.

³ Less than 0.05.

Source: Federal Aviation Agency; *FAA Statistical Handbook of Aviation*. Data from Civil Aeronautics Board.

No. 815. SCHEDULED PASSENGER/CARGO OPERATIONS—OPERATING REVENUES AND EXPENSES OF CERTIFICATED AIR CARRIERS: 1955 TO 1963

[In millions of dollars. Includes intra-Alaska and intra-Hawaii carriers; see also headnote, table 813. 1955 not exactly comparable with later years because of revisions in reporting system. Beginning 1960, aircraft expense items include some ground and indirect expenses not previously included, and the ground and indirect expense item covers only expenses chargeable to general services and administration.]

ITEM	1955	1958	1959	1960	1961	1962	1963
DOMESTIC							
Revenues	1,215	1,636	1,955	2,129	2,245	2,498	2,723
Passenger	1,065	1,432	1,722	1,860	1,951	2,168	2,374
Mail (including subsidy)	61	82	96	113	130	139	143
Express and freight	62	78	91	103	114	136	153
Excess baggage	12	19	21	21	20	20	18
Other	15	25	25	32	30	35	35
Expenses	1,091	1,539	1,848	2,091	2,244	2,408	2,555
Aircraft:							
Flying operations	328	475	551	601	633	659	701
Direct maintenance flight equipment	138	187	230	258	446	496	523
Depreciation and amortization flight equipment	93	126	151	184	283	293	299
Ground and indirect	532	752	915	1,048	882	960	1,042
Net operating income	124	98	107	38	1	90	158
INTERNATIONAL							
Revenues	398	531	592	685	722	810	930
Passenger	300	396	446	528	533	595	663
Mail (including subsidy)	30	38	40	48	60	71	72
Express and freight	33	45	52	59	63	71	80
Excess baggage	7	9	9	10	10	10	12
Other	28	43	46	41	57	63	73
Expenses	380	520	574	639	699	724	799
Aircraft:							
Flying operations	115	164	170	180	187	193	217
Direct maintenance flight equipment	37	48	58	58	109	114	118
Depreciation and amortization of flight equipment	29	48	54	66	104	92	95
Ground and indirect	200	280	292	336	298	325	369
Net operating income	18	11	19	45	24	86	131

Source: Federal Aviation Agency; *FAA Statistical Handbook of Aviation*. Data from Civil Aeronautics Board.

No. 816. SCHEDULED AIR CARRIERS—AVAILABLE SERVICE AND UTILIZATION, AND TRAFFIC CARRIED: 1950 TO 1963

[In millions, except percent. Includes Alaska and Hawaii]

ITEM	1950	1955	1956	1957	1958	1959	1960	1961	1962	1963
SERVICE AND UTILIZATION										
Available ton-miles	2,426	5,280	6,171	7,231	7,326	8,337	9,384	10,580	12,326	13,921
Revenue ton-miles	1,398	3,088	3,619	4,082	4,120	4,734	5,024	5,394	6,238	6,853
Ton-mile load factor—percent	57.6	58.4	58.6	56.5	56.2	56.8	53.5	51.0	50.6	49.2
Available seat-miles	16,842	38,574	43,674	51,059	53,115	50,247	65,567	71,857	82,611	94,844
Revenue passenger-miles	10,243	24,351	27,625	31,261	31,499	36,372	38,863	39,831	43,760	50,861
Passenger load factor—percent	60.8	63.1	63.3	61.2	59.3	61.4	59.3	55.4	53.0	53.6
Revenue plane-miles	477	780	869	976	973	1,030	998	980	1,010	1,094
TRAFFIC CARRIED (revenue ton-miles)										
Total	1,358	3,088	3,619	4,082	4,120	4,734	5,024	5,394	6,238	6,881
Passenger ¹	1,001	2,368	2,686	2,999	3,023	3,490	3,733	3,827	4,210	4,839
U. S. mail:										
Priority	68	{ 128	137	144	160	182	202	223	251	266
Nonpriority		{ 15	15	17	17	19	39	76	89	90
Express	38	51	53	46	49	57	59	61	70	71
Freight	233	383	451	507	501	589	643	733	898	1,023
Charter flights	n.a.	106	233	319	321	346	296	423	668	538
Excess baggage	18	37	43	50	48	52	53	50	52	53

n. a. Not available.

¹ Passenger-miles converted to ton-miles on basis of about 10 to 1; that is, 10 passengers with allowable free baggage are accepted as equine 1 ton.Source: Air Transport Association of America, Washington, D.C.; *Air Transport Facts and Figures*, and unpublished data.

No. 817. SUPPLEMENTAL AIR CARRIERS—SUMMARY OF OPERATIONS: 1955 TO 1963

[In thousands, except number of operators. Supplemental air carriers are those carriers operating by authority of letters of registration granted by the Civil Aeronautics Board. Includes international operations; see also headnote, table 813. Figures shown for military cover activities performed under charter or other contract with the Department of Defense]

ITEM	1955	1958	1959	1960	1961 ¹	1962	1963
Number of operators	50	35	31	30	27	25	15
Revenue-miles	40,330	36,825	38,670	49,498	45,724	n.a.	n.a.
Commercial	17,376	12,907	14,386	13,228	15,697	n.a.	n.a.
Military	22,954	23,918	24,284	36,270	30,027	n.a.	n.a.
Revenue passengers	789	676	859	1,048	978	n.a.	n.a.
Revenue passenger-miles	1,395,682	1,152,988	1,629,556	2,207,595	1,543,027	1,869,697	1,533,810
Commercial	716,096	595,191	759,382	671,094	898,890	816,384	398,010
Military	679,586	557,797	880,174	1,536,501	644,137	1,053,313	1,135,800
Available seat-miles	1,767,162	1,505,174	2,131,914	2,680,520	2,216,780	n.a.	n.a.
Revenue cargo ton-miles	74,601	89,195	84,570	120,400	158,859	214,677	221,387
Commercial	21,191	10,417	11,387	5,355	7,370	22,363	20,340
Military	53,410	78,778	73,183	115,045	151,489	292,309	201,047
Available ton-miles	307,932	263,068	318,158	411,010	444,781	588,538	n.a.
Operating revenue	\$76,824	\$65,204	\$76,480	\$83,447	² \$82,168	² \$107,013	\$92,697
Transport	66,923	59,241	66,405	79,711	79,330	103,114	92,262
Passenger	20,494	15,966	21,734	19,919	22,874	19,226	5,048
Freight	3,743	1,651	1,305	407	302	391	185
Contract and charter:							
Commercial	6,993	10,995	13,899	11,501	9,529	12,023	15,847
Military	35,133	30,487	29,309	47,527	45,678	70,829	70,006
Other	560	142	158	267	947	645	1,182
Other than transport	9,901	5,963	10,075	3,736	2,483	1,579	435
Operating expenses	\$73,067	\$69,464	\$84,676	\$85,265	\$81,034	\$89,787	\$87,572
Direct flight	49,149	46,964	n.a.	n.a.	n.a.	n.a.	n.a.
Other	23,918	22,500	n.a.	n.a.	n.a.	n.a.	n.a.
Operating profit or loss	\$3,757	-\$4,260	-\$8,196	-\$1,818	\$1,134	\$7,226	\$5,125

n. p. Not available.

¹ Traffic data exclude President Airlines for the fourth quarter.² Includes amounts for which no distribution was reported, as follows: 1961, \$355,000; 1962, \$2,319,000.Source: Federal Aviation Agency; *FAA Statistical Handbook of Aviation*. Data from Civil Aeronautics Board.

Air Ton-Miles—Personnel

589

No. 818. DOMESTIC AIR CARGO—REVENUE TON-MILES FLOWN, BY TYPE OF CARRIER: 1950 TO 1963

[In thousands of ton-miles. Includes Alaska and Hawaii. For scheduled combination and all-cargo carriers, comprises express and freight ton-miles; for supplemental carriers, freight only]

YEAR	Total, all carriers	SCHEDULED PASSENGER/CARGO CARRIERS			SCHEDULED ALL-CARGO CARRIERS ²			Supple- men- tal carriers ³
		Total	Sched- uled	Non- sched- uled ¹	Total	Sched- uled	Non- sched- uled ¹	
1950	239,288	154,760	152,223	2,537	71,415	58,420	12,995	13,113
1951	261,188	146,138	144,790	1,348	97,364	72,327	25,037	17,686
1952	259,302	162,600	162,047	553	86,447	81,829	4,618	10,255
1953	281,436	180,006	179,063	943	83,341	74,579	8,762	18,059
1954	277,368	191,304	189,765	1,539	62,355	58,091	4,264	23,709
1955	370,210	236,354	229,966	6,388	102,299	88,802	13,497	40,557
1956	456,549	265,324	247,255	18,069	132,419	103,911	28,508	58,806
1957	554,255	273,770	268,791	4,979	233,310	127,286	106,024	47,175
1958	566,810	296,916	294,018	2,898	208,584	92,716	115,868	61,310
1959	651,477	347,920	344,728	3,192	240,189	105,487	134,702	63,308
1960	723,670	389,438	386,933	2,505	222,262	89,566	132,666	111,970
1961	829,412	455,952	454,142	1,809	259,518	79,040	180,478	113,942
1962	1,103,366	557,573	554,599	2,974	430,612	82,233	348,379	115,171
1963	n.a.	609,453	604,086	5,367	315,425	110,844	204,581	B.B.

n.a. Not available.

¹ Includes some military ton-miles and may include a small amount of international traffic.

² For periods prior to issuance of certificates, includes operations for only those noncertified carriers that were ultimately granted certificates.

³ Civil and military.

Source: Federal Aviation Agency; *F.A.A. Statistical Handbook of Aviation*. Data from Civil Aeronautics Board.

NO. 819. PERSONNEL OF SCHEDULED AIR CARRIERS: 1940 TO 1962

[As of December 31 or for years ending December 31. Hawaii included with domestic personnel and outlying areas with international, all years. Intra-Alaska included with domestic personnel and Mainland-Alaska with international, beginning 1960. Beginning 1959, groups not strictly comparable with prior years because of change in reporting procedures]

TYPE OF PERSONNEL	1940	1950	1955	1959	1960	1961 ¹	1962 ¹
DOMESTIC							
Total	15,984	61,903	95,548	132,042	134,546	136,987	138,673
Pilots and copilots	1,939	5,785	8,721	12,175	11,579	11,741	11,595
Other flight personnel	18	1,721	3,370	3,156	3,334	3,244	3,244
Purrs, stewards, stewardesses	914	3,372	5,919	9,089	8,937	9,926	10,100
Communications personnel	193	2,450	2,548	3,240	3,161	2,728	2,414
Mechanics	4,054	15,788	23,770	26,884	28,303	28,360	29,020
Other hangar and field personnel	1,880	9,822	15,872	35,643	35,704	36,120	37,669
Office employees	5,855	21,894	34,148	26,949	27,959	28,885	29,021
All others	1,131	2,016	2,843	14,692	15,747	15,893	15,667
INTERNATIONAL							
Total	6,067	20,883	26,655	28,648	30,098	29,506	30,400
Pilots and copilots	340	1,492	2,136	1,764	1,600	1,596	1,593
Other flight personnel	15	745	1,041	540	513	522	540
Purrs, stewards, stewardesses	122	1,055	1,535	1,564	1,682	1,892	1,922
Communications personnel		963	951	1,045	1,052	996	979
Mechanics ²	1,359	3,818	5,420	4,705	5,547	4,791	5,047
Other hangar and field personnel	2,397	2,434	3,242	7,163	7,376	7,863	8,211
Office employees	1,834	9,244	10,882	6,986	7,217	7,227	7,394
All others		1,142	1,448	4,881	5,111	4,619	4,714

¹ Includes certain personnel chargeable to international operations.

² Includes other maintenance personnel.

Source: Federal Aviation Agency; *F.A.A. Statistical Handbook of Aviation*. Data from Civil Aeronautics Board.

No. 820. SCHEDULED PASSENGER/CARGO AIR CARRIERS—PAYROLL AND AVERAGE SALARY OF PERSONNEL: 1962

[As of December 31 or for year ending December 31. Intra-Alaska and Hawaii included with domestic personnel; Mainland-Alaska and outlying areas with international]

TYPE OF PERSONNEL	DOMESTIC CARRIERS		INTERNATIONAL CARRIERS	
	Payroll (\$1,000)	Average salary	Payroll (\$1,000)	Average salary
Total	1,034,200	\$7,458	200,071	\$6,581
Pilots and copilots	204,402	17,634	33,330	20,923
Other flight personnel	42,688	13,159	8,337	15,439
Stewards, stewardesses, purfers	45,697	4,523	11,426	5,945
Communications personnel	13,507	5,595	3,567	3,644
Mechanics and other maintenance personnel	208,386	7,180	34,197	6,770
Aircraft and traffic servicing personnel	225,666	5,991	40,737	4,961
Office employees	177,498	6,116	39,254	5,300
All others	116,296	7,452	29,223	6,199

Source: Federal Aviation Agency; *F.A.A. Statistical Handbook of Aviation*. Data from Civil Aeronautics Board.

No. 821. EMPLOYMENT, HOURS, AND EARNINGS IN AIRCRAFT INDUSTRIES—ANNUAL AVERAGES: 1948 TO 1963

ITEM	1948	1950	1955	1959	1960	1961	1962	1963
EMPLOYMENT¹ (1,000)								
Total	206.6	284.4	634.6	755.4	673.8	668.5	707.3	649.6
Aircraft	158.0	188.4	406.6	425.1	371.4	361.5	389.0	334.7
Aircraft engines and parts	48.6	57.0	168.0	182.0	170.5	182.6	197.3	210.10
Other aircraft parts and equipment ²	n.a.	n.a.	n.a.	148.3	131.9	124.4	121.0	104.2
HOURS AND EARNINGS								
Average weekly hours:								
Aircraft industries	41.2	41.4	41.4	40.1	40.6	41.1	41.9	41.3
Aircraft engines and parts industries	40.5	41.7	40.6	41.1	41.1	41.5	41.5	41.3
Average weekly earnings:								
Aircraft industries	\$60.36	\$67.15	\$80.84	\$105.86	\$110.03	\$114.54	\$120.25	\$121.50
Aircraft engines and parts industries	\$61.52	\$69.31	\$86.48	\$108.50	\$112.20	\$116.90	\$120.35	\$123.85
Average hourly earnings:								
Aircraft industries	\$1.46	\$1.62	\$2.17	\$2.64	\$2.71	\$2.78	\$2.87	\$2.94
Aircraft engines and parts industries	\$1.52	\$1.66	\$2.13	\$2.64	\$2.73	\$2.81	\$2.90	\$2.99

n.a. Not available.

¹ Data for week ending nearest middle of month.

² Includes aircraft propellers and parts.

Source: Federal Aviation Agency; *F.A.A. Statistical Handbook of Aviation*. Data from Dept. of Labor, Bureau of Labor Statistics.

No. 822. CIVIL AIRCRAFT SHIPMENTS: 1950 TO 1963

[Represents manufacturers' shipments of complete aircraft. Includes both domestic and export output.]

ITEM	1950	1955	1957	1958	1959	1960	1961	1962	1963
Total	3,520	4,820	6,805	6,882	8,242	8,181	7,414	7,249	8,121
Transports	129	113	322	218	262	238	180	146	80
General aviation	3,391	4,503	6,173	6,478	7,802	7,726	6,943	6,797	7,628
Single-engine:									
1-to-3-place	n.a.	786	1,190	1,012	1,649	1,366	2,150	1,247	1,404
4-place and over	n.a.	2,969	4,080	4,597	5,136	5,072	3,821	4,518	4,013
Multiclient	n.a.	808	923	889	1,017	1,288	963	1,032	1,311
Rotorcraft	n.a.	144	310	186	178	217	291	306	413

n.a. Not available.

Source: Federal Aviation Agency; *F.A.A. Statistical Handbook of Aviation*. Includes data from Dept. of Commerce, Bureau of the Census; *Current Industrial Reports*.

Aircraft

591

No. 823. AIRCRAFT—VALUE OF BACKLOG ORDERS, NET NEW ORDERS; AND NET SALES: 1951 TO 1962

[In millions of dollars. Reported by manufacturers of complete aircraft, aircraft engines, and propellers]

YEAR	Back-log, Jan. 1	Net new orders ¹	Net sales	Back- log, Dec. 31	YEAR	Back- log, Jan. 1	Net new orders ¹	Net sales	Back- log, Dec. 31
1951	5,039	11,100	3,473	12,666	1962				
1952	12,666	11,482	6,495	17,653	Aircraft and parts: ²				
1953	17,653	7,611	8,511	16,753	U.S. military-----	3,968	2,769	2,998	3,739
1954	16,848	6,309	8,305	14,852	Other-----	1,678	1,020	1,389	1,309
1955	14,852	9,323	8,470	16,705	Aircraft engines and parts:				
1956	15,705	12,141	9,496	18,350	U.S. military-----	1,088	1,207	1,130	1,165
1957	18,350	7,947	11,766	14,531	Other-----	458	288	383	363
1958	14,531	10,110	11,470	13,171	Missiles and parts:				
1959	13,171	10,204	11,255	12,120	U.S. military-----	8,773	5,180	5,471	3,482
1960	12,120	11,373	10,997	15,452	Other-----	229	941	607	563
1961	15,452	13,418	14,948	14,147	Other products and services-----	2,953	3,557	3,994	2,516
1962	14,147	14,962	15,972	13,137					

¹ New orders received during year less terminations during year.² Includes propellers and propeller parts.Source: Federal Aviation Agency. Data from Dept. of Commerce, Bureau of the Census; *Current Industrial Reports*.

No. 824. EXPORTS OF AIRCRAFT AND AIRCRAFT PARTS AND ACCESSORIES: 1950 TO 1963

[Value in thousands of dollars. Calendar years, except as noted. See *Historical Statistics, Colonial Times to 1957*, series Q 349-350, for total number and value of civil aircraft]

ITEM	1950		1955		1960		1962		1963 ¹	
	Number of units	Value	Number of units	Value	Number of units	Value	Number of units	Value	Number of units	Value
Aircraft, parts, and accessories-----	n.a.		727,549		1,329,487		1,435,477		1,284,397	
Civil aircraft-----	756	44,287	1,714	129,924	2,336	537,126	2,131	323,340	2,210	253,833
Aircraft 3,000 pounds airframe weight and over-----	n.a.	n.a.	369	118,341	304	506,721	311	293,563	306	223,003
Transports, new-----	48	40,444	95	81,144	159	480,126	172	254,825	175	189,887
3,000-14,999 pounds-----	4	368	39	2,530	57	6,711	120	11,097	140	12,585
15,000-29,999 pounds-----	15	6,665	5	2,364	10	9,094	2	2,655	4	4,218
30,000 pounds and over-----	29	33,381	51	76,250	92	404,321	50	241,073	31	173,084
Rotary-wing aircraft, new-----	n.a.	n.a.	15	2,161	12	3,965	13	4,616	11	3,492
Used and rebuilt aircraft, including converted-----			259	35,036	133	22,630	126	34,122	120	29,624
Aircraft under 3,000 pounds airframe weight-----	708	3,843	1,345	11,583	2,082	30,405	1,820	20,777	1,904	30,830
Utility aircraft, new-----	468	2,253	749	7,422	1,528	23,592	1,458	23,048	1,523	24,132
3-place and under-----	173	509	296	1,948	374	2,996	431	3,775	495	4,999
4-place and over-----	235	1,744	463	5,474	1,164	20,596	1,027	19,273	1,028	19,133
Rotary-wing aircraft, new-----	38	984	51	2,004	70	3,738	97	4,161	104	4,111
Aircraft, new, not elsewhere classified-----			4	8	3	22	9	105	7	29
Used and rebuilt aircraft, including converted-----	262	606	541	2,149	431	3,053	256	2,463	270	2,558
Air-cooled reciprocating engines, new-----	205	201	897	2,016	1,464	3,716	1,819	4,510	1,415	3,821
Other aircraft, parts, and accessories ² -----	n.a.		695,609		788,646		1,107,627		1,026,743	

¹ n.a. Not available.² For year ending June 30.³ Includes military aircraft, new engines 400 hp. and over, parts, and accessories.Source: Federal Aviation Agency; *FAA Statistical Handbook of Aviation*. Data from Dept. of Commerce, Bureau of the Census; *Current Industrial Reports*.

Transportation—Air and Water

No. 825. CIVIL AIRCRAFT, AIRPORTS, AND FEDERAL-AID AIRPORT PROGRAM—
STATES AND OTHER AREAS: 1963

[As of December 31, except as noted]

STATE OR OTHER AREA	CIVIL AIRCRAFT ¹		AIRPORTS BY OWNERSHIP ²			FEDERAL-AID AIRPORT PROGRAM ³ (\$1,000)		
	Total	Active	Total	Public	Private	Total	Federal funds	Sponsor funds
	129,975	87,267	8,814	3,451	5,363	1,624,141	798,648	825,493
Alabama	1,381	927	100	67	33	20,758	10,476	10,282
Alaska	2,610	1,588	519	375	144	35,252	23,629	11,623
Arizona	2,251	1,451	171	76	95	23,902	13,049	10,853
Arkansas	1,765	1,161	104	49	55	11,480	5,691	5,799
California	17,687	11,389	574	239	335	153,457	73,553	79,904
Colorado	1,946	1,333	158	57	101	28,622	14,765	13,857
Connecticut	965	633	91	14	77	12,709	6,349	6,360
Delaware	886	279	18	3	15	1,662	804	798
District of Columbia	598	365	3	3				
Florida	5,260	3,137	218	108	110	64,503	31,005	33,558
Georgia	2,024	1,421	153	76	77	30,466	19,668	19,797
Hawaii	263	137	42	16	26	30,205	10,309	19,896
Idaho	1,251	888	173	114	59	7,400	4,135	3,265
Illinois	5,909	4,044	302	71	231	104,794	49,832	54,902
Indiana	3,534	2,445	152	45	107	30,598	15,059	15,539
Iowa	2,325	1,744	203	65	138	23,021	11,416	11,605
Kansas	3,287	2,369	236	103	133	11,358	5,604	5,754
Kentucky	975	672	55	39	16	23,231	11,344	11,887
Louisiana	2,086	1,386	161	49	122	38,976	18,664	20,312
Maine	574	402	137	44	93	5,089	2,507	2,562
Maryland	1,281	829	72	17	55	14,783	7,275	7,508
Massachusetts	1,754	1,108	111	33	78	31,858	15,560	16,298
Michigan	4,944	3,431	226	113	113	62,823	29,768	33,055
Minnesota	3,263	2,361	245	107	138	40,000	19,828	20,172
Mississippi	1,544	980	105	50	55	17,179	8,284	8,945
Missouri	3,032	2,119	210	68	142	42,224	20,742	21,482
Montana	1,596	1,147	175	102	73	11,396	6,020	5,376
Nebraska	1,901	1,385	193	84	109	18,069	8,880	9,189
Nevada	903	633	66	34	32	15,672	9,003	6,669
New Hampshire	369	224	35	13	22	4,133	2,062	2,071
New Jersey	2,637	1,712	119	19	100	25,536	12,506	13,030
New Mexico	1,518	1,033	110	48	62	9,695	5,427	4,268
New York	5,918	3,863	312	59	253	136,718	62,126	74,502
North Carolina	2,145	1,442	142	38	104	21,483	10,704	10,779
North Dakota	1,065	695	169	60	109	7,474	3,664	3,810
Ohio	5,399	3,713	377	52	325	59,609	29,095	30,514
Oklahoma	2,772	1,905	163	83	80	38,254	18,928	19,326
Oregon	2,474	1,719	165	75	90	18,078	8,323	8,735
Pennsylvania	4,157	2,800	473	64	409	84,398	40,658	43,710
Rhode Island	203	134	13	6	7	7,332	3,579	3,753
South Carolina	795	556	90	42	48	12,920	6,513	6,407
South Dakota	1,170	791	89	56	33	4,754	2,513	2,240
Tennessee	1,577	1,127	105	50	55	40,565	20,378	20,187
Texas	10,584	7,205	705	207	498	91,777	45,393	40,384
Utah	865	615	70	52	18	14,924	9,200	5,724
Vermont	202	126	32	11	21	2,646	1,318	1,327
Virginia	1,521	972	105	38	67	24,899	12,310	12,689
Washington	3,120	1,961	212	101	111	27,110	13,391	13,719
West Virginia	647	465	53	15	38	15,780	7,752	8,028
Wisconsin	2,412	1,689	192	83	109	30,927	15,166	15,761
Wyoming	762	531	84	39	45	4,774	2,714	2,060
Other areas	388	227	26	19	7	19,859	10,697	9,162

¹ Includes gliders.² Includes military airports with joint civil and military use.³ Cumulative since enactment of Federal Airport Act, May 16, 1946, through Dec. 31, 1963.

Cargo Tonnage—International Transportation

593

No. 826. WATERBORNE COMMERCE, FOREIGN AND DOMESTIC—CARGO TONNAGE: 1940 TO 1962

[In millions of short tons. Includes Alaska, Hawaii, and outlying areas. Import and export figures differ slightly from those shown in tables 828 and 829, due to minor differences in basic concepts which are explained in the source. See also *Historical Statistics, Colonial Times to 1957*, series Q 216-220.]

CLASS	1940	1945	1950	1955	1959	1960	1961	1962
Net total, foreign and domestic.	608	619	821	1,016	1,052	1,100	1,062	1,129
Foreign commerce.	111	172	169	271	326	339	329	359
Imports, through seaports	41	45	96	144	199	198	188	207
Exports, through seaports	50	100	44	95	92	105	106	110
Imports, Great Lakes ports	4	7	6	9	15	13	12	16
Exports, Great Lakes ports	17	21	24	23	21	23	23	25
Domestic commerce¹.	497	447	651	745	727	761	733	771
Coinwise, between ports	157	91	183	196	206	209	207	215
Great Lakes, between ports	141	158	170	185	131	155	137	136
Local traffic of seaports, Great Lakes ports, and inland waterways ports	98	98	107	113	107	104	94	102
Traffic between ports and river ports ²	70	87	191	250	282	291	294	316
Traffic between ports of outlying areas of the United States ³				1	2	41	1	1

¹ For 1940 and 1945, approximate net total, excluding duplications in domestic traffic.

² Represents traffic among ports and communities mainly utilizing inland waterways.

³ Included in other types of domestic traffic prior to 1950.

⁴ Traffic confined to the States of Alaska and Hawaii transferred to other traffic categories as appropriate.

Source: Dept. of the Army, Corps of Engineers; figures through 1950, *Annual Report of Chief of Engineers*, Part 2; thereafter, *Waterborne Commerce of the United States*.

No. 827. UNITED STATES RECEIPTS AND PAYMENTS FOR INTERNATIONAL TRANSPORTATION: 1947 TO 1963

[In millions of dollars. Includes Alaska and Hawaii. Data are international transportation transactions recorded for balance of payments purposes (see table 1206). Receipts include freight on exports carried by U.S. operated carriers and foreign carrier expenditures in U.S. ports. Payments include freight on imports carried by foreign carriers and U.S. carrier port expenditures abroad. Freight on exports carried by foreign carriers is excluded since such payments are directly or indirectly for foreign account. Similarly, freight on U.S. imports carried by U.S. carriers is a domestic rather than an international transaction. Minus sign (-) denotes decrease. See *Historical Statistics, Colonial Times to 1957*, series U 170 and U 177, for totals]

ITEM	1947	1950	1955	1958	1959	1960	1961	1962	1963 (prel.)
Total receipts.	1,738	1,033	1,406	1,638	1,646	1,687	1,821	1,925	1,887
Ocean transportation	1,593	859	1,137	1,283	1,224	1,272	1,347	1,429	1,346
Export freight earnings	1,154	380	448	429	359	428	424	440	425
Privately controlled shipments:									
Coal	257	1	26	8	5	n.a.	n.a.	n.a.	n.a.
Grain	67	23	44	52	39	n.a.	n.a.	n.a.	n.a.
Other dry cargo	608	311	365	361	309	n.a.	n.a.	n.a.	n.a.
Tanker	29	12	12	8	6	n.a.	n.a.	n.a.	n.a.
Military-controlled shipments ¹	193	33	1						
Freight earnings on shipments between foreign countries	100	110	106	130	140	136	155	177	178
Passenger fares	39	20	23	24	20	19	9	10	10
Port expenditures	281	313	548	692	698	681	751	792	724
Charter hire	19	36	12	8	7	8	8	10	9
Other transportation	145	174	269	355	422	415	474	496	541
Total payments.	583	818	1,204	1,636	1,759	1,988	1,921	2,115	2,187
Ocean transportation	456	643	946	1,247	1,299	1,406	1,380	1,505	1,518
Import freight payments	141	295	480	743	812	910	746	851	869
Dry cargo	133	255	358	545	674	n.a.	n.a.	n.a.	n.a.
Tanker	8	40	122	198	138	n.a.	n.a.	n.a.	n.a.
Passenger fares	47	121	138	166	183	212	215	229	235
Port expenditures	231	138	153	170	155	167	231	260	233
Charter hire	37	89	175	168	149	117	168	165	181
Other transportation	127	175	258	389	460	582	561	610	669
Receipts balance.	1,155	215	202	2	-113	-301	-100	-190	-300

n.a. Not available.

¹ Represents freight on economic aid only. Freight on military end items not included.

Source: Dept. of Commerce, Office of Business Economics; *Balance of Payments Statistical Supplement*, 1963 edition, a supplement to the *Survey of Current Business*, *Survey of Current Business*, August 1963 and June 1964, and unpublished data.

No. 828. WATERBORNE IMPORTS AND EXPORTS—CARGO TONNAGE, BY FLAG OF CARRIER VESSEL: 1935 TO 1963

[In thousands of short tons. Prior to 1946, excludes cargoes (small in aggregate) carried by ships of less than 100 tons gross capacity. Beginning 1950, excludes U.S. Army and Navy cargo, and includes Alaska, Hawaii, and Puerto Rico. Beginning July 1950, excludes commodities classified for security reasons as "special category." For 1953 and beginning July 1956, exports exclude shipments under \$500 in value regardless of shipping weight; for January through June 1956, exclude those under \$1,000 regardless of shipping weight. For 1955 imports exclude shipments under 2,000 pounds shipping weight regardless of value, as well as shipments valued at less than \$100 regardless of shipping weight. Beginning 1958, imports exclude only those shipments valued at less than \$100 regardless of shipping weight. See also *Historical Statistics, Colonial Times to 1957*, series Q 210-215.]

YEAR	Total trade.	Percent by U.S. flag	IMPORTS BY FLAG OF CARRIER VESSEL				EXPORTS BY FLAG OF CARRIER VESSEL			
			Total	U.S.	Foreign	Percent U.S.	Total	U.S.	Foreign	Percent U.S.
TOTAL										
1935	80,765	31.7	38,042	15,820	22,221	41.6	42,723	9,789	32,935	22.9
1940	105,506	28.7	44,667	17,322	27,345	38.8	60,929	12,039	47,900	21.2
1945 ¹	101,030	68.4	39,426	31,415	8,011	79.7	61,603	37,728	23,874	61.2
1950	159,389	39.3	96,703	42,208	54,495	43.7	62,685	20,379	42,306	32.5
1955	253,910	23.5	141,123	37,409	103,715	26.5	112,798	22,144	90,652	19.6
1958	290,358	13.5	175,605	20,628	154,977	11.7	114,748	18,686	96,062	16.3
1959	308,702	11.9	200,481	19,219	181,262	9.5	108,281	17,724	90,557	16.3
1960	322,717	12.3	198,830	19,627	179,203	9.9	128,887	20,133	103,754	16.3
1961	315,406	10.6	187,887	15,155	172,732	8.1	127,519	18,411	100,108	14.4
1962	344,631	11.0	210,631	18,373	192,257	8.7	134,001	19,535	114,466	14.6
1963	368,664	9.9	212,542	15,682	196,860	7.4	156,122	20,885	135,237	13.4
DRY CARGO										
1945 ¹	63,083	70.9	21,716	17,053	4,663	78.5	41,367	27,672	13,605	66.9
1950	100,189	31.2	46,611	14,823	31,788	31.8	53,578	16,429	37,149	30.7
1955	169,231	23.2	68,437	19,855	48,582	29.0	100,794	19,762	81,032	19.6
1958	184,594	16.2	79,942	13,602	66,340	17.0	104,652	16,341	88,311	15.6
1959	194,966	15.6	98,515	14,679	83,836	14.9	96,451	15,870	80,581	16.4
1960	202,497	15.2	94,931	13,813	81,118	14.6	107,568	16,980	90,586	15.8
1961	196,004	13.7	84,185	10,904	73,281	13.0	111,819	16,002	95,817	14.3
1962	218,173	13.4	98,458	12,355	86,103	12.5	119,715	16,888	102,827	14.1
1963	239,486	12.0	98,623	10,998	87,625	11.1	140,862	17,750	123,112	12.6
TANKER CARGO										
1945 ¹	37,947	64.4	17,711	14,362	3,849	81.1	20,236	10,058	10,179	49.7
1950	59,199	53.0	50,092	27,445	22,647	54.8	9,107	3,950	5,157	43.4
1955	84,688	23.5	72,686	17,554	55,133	24.2	12,002	2,382	9,620	19.8
1958	105,760	8.9	95,664	7,026	88,638	7.3	10,096	2,345	7,751	23.2
1959	113,796	5.6	101,966	4,540	97,426	4.5	11,830	1,854	9,976	15.7
1960	120,219	7.5	103,898	5,814	98,084	5.6	16,321	3,153	13,168	19.8
1961	119,402	5.6	103,702	4,251	99,451	4.1	15,700	2,409	13,291	15.3
1962	126,458	6.9	112,172	6,018	106,154	5.4	14,288	2,647	11,639	18.5
1963	129,178	6.0	113,918	4,684	109,234	4.1	15,260	3,135	12,125	20.5

¹ Excludes U.S. Army and Navy cargo, and Great Lakes.

No. 829. WATERBORNE IMPORTS AND EXPORTS—CARGO TONNAGE, BY COASTAL DISTRICT: 1945 TO 1963

[In thousands of short tons. See headnote, table 828]

DISTRICT	1945	1950	1955	1958	1959	1960	1961	1962	1963
IMPORTS									
Atlantic ports	30,748	76,062	105,990	125,306	137,612	135,313	125,349	139,579	140,155
Gulf ports	5,675	10,930	17,345	26,288	28,341	27,304	26,948	30,019	30,180
Pacific ports	3,003	4,005	9,038	16,071	18,806	23,281	23,621	25,410	24,272
Great Lakes ports	5,616	8,751	7,880	14,822	12,932	11,971	15,622	17,936	
EXPORTS									
Atlantic ports	39,609	15,228	54,906	55,648	41,478	44,902	44,454	46,983	56,788
Gulf ports	14,737	16,818	22,500	27,674	31,394	36,730	40,053	43,605	47,651
Pacific ports	7,258	7,270	13,394	14,089	14,897	19,351	20,050	18,248	23,531
Great Lakes ports	23,370	21,996	17,336	20,512	22,905	22,963	25,165	28,103	

Source of tables 828 and 829: Dept. of Commerce, Bureau of the Census; *Foreign Commerce and Navigation of the United States*, releases, and unpublished data.

Exports and Imports

595

No. 830. WATERBORNE EXPORTS AND IMPORTS—VALUE OF TRADE, BY COASTAL DISTRICT: 1961 TO 1963

[In millions of dollars. Includes trade of Alaska, Hawaii, and Puerto Rico with foreign countries]

DISTRICT AND TYPE OF VESSEL	TOTAL TRADE			EXPORTS			IMPORTS		
	1961	1962	1963	1961	1962	1963	1961	1962	1963
Total	24,279	25,510	27,192	13,635	13,705	14,793	10,644	11,805	12,399
Atlantic	14,616	15,471	16,092	7,168	7,312	7,674	7,448	8,159	8,418
Dry cargo	13,343	14,114	14,689	7,094	7,214	7,565	6,249	6,900	7,104
Tanker	1,273	1,358	1,423	74	98	109	1,199	1,260	1,314
Gulf	5,155	5,158	5,506	3,908	3,797	4,036	1,247	1,361	1,470
Dry cargo	4,415	4,465	4,832	3,249	3,194	3,458	1,166	1,271	1,374
Tanker	740	693	674	659	603	578	81	90	96
Pacific	3,246	3,424	3,916	1,769	1,700	2,071	1,477	1,724	1,845
Dry cargo	2,889	3,061	3,566	1,650	1,602	1,964	1,239	1,459	1,602
Tanker	358	364	350	119	98	107	239	266	243
Great Lakes	1,262	1,457	1,678	790	806	1,012	472	561	666
Dry cargo	1,201	1,421	1,626	738	867	974	463	554	652
Tanker	61	36	52	52	29	38	9	7	14

Source: Dept. of Commerce, Bureau of the Census; annual review, *United States Waterborne Foreign Commerce*.

No. 831. WATERBORNE EXPORTS AND IMPORTS—SHIPPING WEIGHT OF PRINCIPAL COMMODITIES IN OCEANBORNE TRADE: 1961 AND 1962

[In thousands of short tons. Includes trade of Alaska, Hawaii, and Puerto Rico with foreign countries. Export data exclude shipments of under \$500 in value. Import data exclude shipments of under \$100 in value. "N.e.c." means not elsewhere classified]

COMMODITY	1961	1962	COMMODITY	1961	1962
EXPORTS					
Bituminous coal and lignite	23,856	27,234	Crude petroleum	53,679	56,000
Wheat	17,584	14,766	Iron ore and concentrates	21,048	28,786
Corn	6,136	9,111	Residual fuel oil	39,183	22,670
Iron and steel scrap	7,638	4,239	Gas oil and distillate fuel oil	2,303	21,590
Phosphate rock	3,880	3,965	Aluminum ores and concentrates	11,348	13,110
Soybeans, inedible	3,144	3,610	Petroleum products, n.e.c.	3,783	5,908
Grain sorghums	1,747	2,999	Gypsum or plaster rock	4,910	5,341
Lubricating oils and greases	2,444	2,584	Sugar	4,211	4,314
Residual fuel oil	2,266	2,112	Iron and steel mill products	2,953	3,762
Wheat flour and semolina	1,950	2,093	Manganese	2,313	2,104
Barley and rye	1,385	1,723	Jet fuels	1,304	1,916
Sulphur	1,097	1,678	Bananas	1,888	1,767
Iron and steel mill products	1,755	1,533	Coffee, raw or green	1,487	1,628
Animal feeds, n.e.c.	828	1,476	Pulpwood	1,418	1,560
Logs	1,443	1,294	Lumber and shingles	1,313	1,546
Gas oil and distillate fuel oil	895	1,290	Standard newsprint paper	1,478	1,504
Coke, including petroleum coke	1,270	1,233	Molasses, inedible	1,369	1,474
Rice	898	1,161	Chrome	1,304	1,453
Iron ore and concentrates	997	1,159	Petroleum asphalt	1,178	1,167
Wood pulp	1,132	1,136	Nitrogenous fertilizer	806	796
Anthracite coal	681	1,072	Nometallic minerals and manu-		
Industrial chemicals, n.e.c.	897	1,011	factures, n.e.c.	533	782
Cotton, unmanufactured	1,654	973	Sulphur	685	774
Inedible animal products, n.e.c.	906	842	Salt	713	758
Lumber and shingles	764	805	Building cement	457	748
			Gasoline and other motor fuel	498	616

Source: Dept. of Commerce, Bureau of the Census; annual review, *United States Waterborne Foreign Commerce*.

No. 832. COMMERCE OF SELECTED UNITED STATES PORTS: 1962

[In thousands of short tons (cargo). Excludes Great Lakes. In addition to commerce shown here, many ports have (a) commerce with ports on internal rivers and canals; (b) purely local port traffic]

PORT	Im- ports	Ex- ports	COASTWISE		PORT	Im- ports	Ex- ports	COASTWISE	
			Re- ceipts	Ship- ments				Re- ceipts	Ship- ments
Total ¹	207,041	110,492	215,321	215,403					
ATLANTIC COAST PORTS									
Portland Harbor, Maine	12,056	55	2,876	432	Charlotte Harbor, Fla.	18	386	172	866
Portsmouth Harbor, N.H.	653	(2)	801		Tampa Harbor, Fla.	1,250	4,329	6,197	1,658
Salem Harbor, Mass.	239	(2)	1,309	151	Port St. Joe Harbor, Fla.	2	10	1,701	
Boston, Mass.	6,301	610	10,410	736	Mobile Harbor, Ala.	5,118	1,573	396	1,974
Fall River Harbor, Mass.	434		2,052	42	New Orleans, La.	4,700	14,012	1,034	17,904
Providence River and Harbor, R.I.	1,022	138	6,263	831	Baton Rouge, La.	5,574	4,278	182	7,714
New London Harbor, Conn.	464		417	229	Lake Charles, La. ³	201	993	800	7,299
New Haven Harbor, Conn.	1,206	144	5,673	1,109	Galveston, Tex.	151	3,637	167	90
Bridgeport Harbor, Conn.	538	64	1,543	374	Texas City, Tex.	11	162	680	8,618
Norwalk Harbor, Conn.			717	(2)	Houston, Tex.	3,485	6,634	2,414	24,705
Stamford Harbor, Conn.			760	31					
Port of New York, N.Y., and N.J.	38,544	7,061	43,280	18,162	GULF COAST PORTS				
Hempstead Harbor, N.Y.			1,944	3,648	Corpus Christi, Tex.	3,530	1,813	231	8,931
Port Jefferson Harbor, N.Y.	20		1,651	33	Harbor Island, Tex.	1,305			5,139
Port of Albany, N.Y.	526	326	3,353	2	Freeport Harbor, Tex.	3	111	25	2,443
Delaware River and tributaries	46,277	3,563	27,158	8,017	Brazos Island Harbor, Tex.	1,793	298	84	1,984
Baltimore Harbor and Channels, Md.	18,265	5,183	8,018	1,636	Beaumont, Tex.	49	1,529	1,593	17,018
Norfolk Harbor, Va.	2,788	18,871	7,792	4,057	Port Arthur, Tex.	196	2,822	2,172	16,809
					PACIFIC COAST PORTS				
Port of Newport News, Va.	1,071	9,205	14	1,363	San Diego Harbor, Calif.	448	84	1,556	29
Port of Wilmington, N.C.					Long Beach Harbor, Calif.	3,175	2,284	922	2,488
Charleston Harbor, S.C.	601	164	3,353	7	Los Angeles Harbor, Calif.	6,541	2,670	4,712	7,512
Savannah Harbor, Ga.	1,319	392	2,523	245	San Francisco Bay Area, Calif.	6,977	4,741	13,271	8,978
Jacksonville Harbor, Fla.	1,997	588	1,551	250	Stockton, Calif.	121	1,678	130	187
Port Everglades Har- bor, Fla.	3,054	287	3,236	282					
Miami Harbor, Fla.	1,217	91	3,495	178	Coos Bay, Oreg.	(2)	401	242	550
San Juan Harbor, P.R.	373	122	198	65	Portland, Oreg.	729	2,679	5,485	184
	2,137	119	1,540	891	Vancouver, Wash.	34	619	158	68
					Longview, Wash.	127	1,168	317	106
					Tacoma Harbor, Wash.	812	991	366	71
					Seattle Harbor, Wash.	995	845	3,076	689
					Bellingham Bay and Harbor, Wash.	630	124	23	15
								545	110
					Seward Harbor, Alaska.				
					Honolulu Harbor, Hawaii	482	150	2,140	1,523

¹ Includes data for ports not shown separately.

² Less than 500 tons.

³ Includes Calcasieu River and Pass.

Source: Dept. of the Army, Corps of Engineers; *Waterborne Commerce of the United States*.

No. 833. FEDERAL EXPENDITURES FOR CIVIL FUNCTIONS OF THE CORPS OF ENGINEERS, U.S. ARMY: 1940 TO 1963

[In thousands of dollars. For years ending June 30. Includes Alaska, Hawaii, and outlying areas. Represents funds actually expended under the direction of the Chief of Engineers for maintenance and improvement of rivers and harbors, flood control, and other miscellaneous works]

YEAR	Amount	YEAR	Amount	YEAR	Amount	YEAR	Amount
1940	218,889	1946	168,957	1952	597,102	1958	718,532
1941	220,734	1947	269,380	1953	635,512	1959	806,427
1942	198,041	1948	380,615	1954	539,687	1960	868,573
1943	222,053	1949	572,830	1955	511,587	1961	938,032
1944	175,589	1950	634,584	1956	556,724	1962	904,964
1945	134,216	1951	620,581	1957	666,438	1963	1,092,579

Source: Dept. of the Army, Corps of Engineers; annual report, *Statement of Costs*.

No. 834. COMMERCE OF SELECTED GREAT LAKES PORTS: 1950 TO 1962

[In thousands of short tons (cargo). Comprises foreign, lakewise, and coastwise shipping]

PORT	RECEIPTS				SHIPMENTS			
	1950	1955	1960	1962	1950	1955	1960	1962
Total.....	175,637	193,591	168,043	151,532	193,511	207,588	178,287	161,219
Ashland Harbor, Wis.....	685	451	404	349	5,422	4,527	1,170	1,152
Ashribatula Harbor, Ohio.....	10,447	9,455	7,773	6,994	3,302	3,586	2,450	1,994
Buffalo, N.Y., Port of.....	16,458	19,318	15,595	13,063	2,417	2,436	1,226	952
Chicago, Ill., Port of.....	15,813	16,872	12,303	10,887	4,093	6,349	8,411	9,223
Cleveland Harbor, Ohio.....	17,375	19,744	17,113	16,143	382	358	511	549
Conneaut Harbor, Ohio.....	9,562	14,189	6,570	2,199	2,522	994	588	864
Detroit, Mich., Port of.....	21,090	24,295	25,334	25,181	1,298	1,626	1,892	1,560
Duluth-Superior, Minn. and Wis.....	10,117	7,142	5,155	4,385	53,009	61,156	37,512	25,910
Indiana Harbor, Ind.....	10,355	13,695	12,116	12,131	5,182	6,386	7,059	5,411
Lorain Harbor, Ohio.....	8,153	5,563	5,036	4,361	3,264	2,255	1,659	1,147
Milwaukee Harbor, Wis.....	7,357	7,157	6,861	4,950	1,421	1,532	1,647	1,770
Sandusky Harbor, Ohio.....	1	1	38	46	9,822	7,961	5,616	4,054
Toledo Harbor, Ohio.....	4,640	6,504	5,870	5,391	29,307	28,710	27,815	30,714
Two Harbors (Agate Bay), Minn.....	216	99			18,948	19,004	15,268	13,016
All other.....	43,368	49,156	47,875	44,602	53,122	60,708	65,465	62,902

Source: Dept. of the Army, Corps of Engineers; 1950, *Annual Report of the Chief of Engineers*, Part 2; thereafter, *Waterborne Commerce of the United States*.

No. 835. FREIGHT CARRIED ON INLAND WATERWAYS, BY SYSTEM: 1940 TO 1962

[In millions of ton-miles. Excludes Alaska and Hawaii, except as noted]

SYSTEM	1940	1945	1950	1955	1960	1962
Total.....	118,057	142,737	163,344	216,508	220,253	223,089
Atlantic coast rivers.....	1,859	1,036	6,497	27,042	28,583	29,405
Gulf coast rivers.....	593	345	1,229	13,860	16,932	17,938
Pacific coast rivers.....	1,229	1,555	1,686	4,736	6,001	6,363
Mississippi River System ¹	13,934	19,595	33,598	52,019	69,257	79,305
Other waterways ²	10	9	8	5	12	29
Canal and connecting channels ³	4,787	7,168	8,639			
Great Lakes System.....	95,645	113,028	111,087	118,845	99,468	90,049

¹ Comprises main channels and all tributaries of the Mississippi, Illinois, Missouri, and Ohio Rivers.

² Beginning 1960, includes Alaskan waterways.

³ Except Great Lakes. Beginning 1955, distributed by inland waterway system.

Source: Dept. of the Army, Corps of Engineers; through 1950, *Annual Report of the Chief of Engineers*, Part 2; thereafter, *Waterborne Commerce of the United States*.

No. 836. FREIGHT CARRIED ON GREAT LAKES SYSTEM: 1962

[In millions of ton-miles]

AREA	Total	DOMESTIC				FOREIGN	
		Lakewise	Coast-wise	Internal	Local and intraport	Canadian	Overseas
Total.....	90,049	65,990	107	687	104	16,991	6,169
Lake Superior.....	23,373	19,572	-----	(1)	(1)	2,870	921
St. Marys River.....	4,500	3,654	-----	(1)	(1)	694	152
Lake Michigan, Including Port of Chicago ²	16,466	13,833	11	475	86	1,484	577
Lake Huron.....	19,847	15,850	11	9	3	2,968	1,006
St. Clair River, including channels in Lake St. Clair.....	4,881	3,893	3	2	(1)	732	251
Detroit River.....	2,737	2,164	4	5	1	415	149
Lake Erie, including upper Niagara River.....	12,566	6,922	42	100	14	4,180	1,300
Welland Canal.....	698	11	5	14	(1)	504	163
Lake Ontario, including lower Niagara River.....	3,202	77	29	78	(1)	2,048	970
St. Lawrence River, between International Boundary Line and Lake Ontario.....	1,781	15	3	5	-----	1,077	681

¹ Less than 500,000 ton-miles.

² Comprises Chicago Harbor, North Branch, South Branch, Sanitary Ship Canal, Calumet-Sag Channel, Lake Calumet, Calumet Harbor and River.

Source: Dept. of the Army, Corps of Engineers; *Waterborne Commerce of the United States*.

Transportation—Air and Water

No. 837. FREIGHT CARRIED ON MISSISSIPPI RIVER SYSTEM: 1940 to 1962

[Net traffic. Comprises main channels and all tributaries of the Mississippi, Illinois, Missouri, and Ohio Rivers]

YEAR	TRAFFIC IN SHORT TONS (1,000)					TRAFFIC IN TON-MILES (1,000,000)				
	Total	Inland	Coast-wise	Foreign		Total	Inland	Coast-wise	Foreign	
				Imports	Exports				Imports	Exports
1940	88,980	73,174	9,001	3,157	3,649	13,934	11,578	1,523	385	447
1945	95,543	82,081	4,054	3,114	5,304	19,695	17,738	849	340	608
1950	138,145	114,697	13,877	4,395	5,176	33,598	30,282	2,074	599	643
1955	194,363	163,760	16,060	6,296	8,248	52,019	47,418	2,473	1,046	1,082
1957	227,028	188,214	17,643	8,536	12,638	60,710	54,769	2,734	1,459	1,749
1958	209,881	172,582	16,996	10,475	9,828	59,208	53,443	2,507	1,811	1,446
1959	223,950	183,909	19,146	10,424	10,471	65,721	59,505	2,811	1,732	1,614
1960	233,950	188,098	21,994	11,284	12,584	69,257	62,367	3,184	1,821	1,884
1961	1,240,220	190,968	23,900	10,477	14,173	1,72,326	64,840	3,453	1,803	2,150
1962	1,257,962	200,041	26,960	11,925	18,143	1,79,305	70,999	3,303	2,144	2,759

¹ For 1961, includes 702 thousand tons and 79 million ton-miles, respectively, of foreign commerce classified as "Through traffic"; for 1962, 893 thousand tons and 100 million ton-miles, respectively. In earlier years, similar traffic was included in "Imports" and "Exports."

No. 838. COMMERCE ON SELECTED RIVERS, CANALS, AND CONNECTING CHANNELS: 1940 to 1962

[In thousands of short tons (cargo). Excludes general ferry traffic and nonregulated car ferry traffic]

WATERWAY	1940	1945	1950	1955	1960	1962
RIVERS						
<i>Hudson River, N. Y. (Mouth of Spuyten Duyvil Creek to Waterford, N. Y.)</i>						
Delaware River, Philadelphia, Pa., to Trenton, N. J.	11,516	5,747	14,574	1,20,203	19,062	1,21,069
Delaware River, Philadelphia, Pa., to the sea	4,410	4,261	7,086	11,010	14,919	17,244
Potowmac River below Washington, D. C.	27,658	29,558	69,283	86,754	98,824	103,881
Jamest River, Va.	3,016	1,936	2,402	3,796	4,378	4,607
Wilmington Harbor, N. C.	2,649	1,469	3,663	5,197	5,186	6,270
Black Warrior, Warrior, and Tombigbee Rivers, Ala.	2,758	2,1169	4,022	4,698	5,168	5,485
San Joaquin River, Calif.	1,890	1,492	2,003	4,221	5,804	6,168
Columbia and Lower Willamette Rivers below Vancouver, Wash., and Portland, Oreg.	1,049	1,220	1,495	2,414	4,467	4,183
Columbia River from Vancouver, Wash., to The Dalles, Oreg.	15,028	16,635	18,578	19,826	21,867	22,258
Willamette River above Portland and Yamhill River, Oreg.	1,884	1,417	2,845	3,216	4,349	4,133
Illinois Waterway, Ill.	3,067	2,877	3,948	4,290	4,065	3,822
Mississippi River, Minneapolis, Minn., to the Passes	5,729	6,591	16,421	21,363	26,929	30,000
Allegheny River, Pa.	32,372	43,969	66,923	94,042	128,348	149,898
Monongahela River, Pa. and W. Va.	3,029	2,416	3,594	4,721	3,833	4,441
Kanawha River, W. Va.	29,560	26,556	28,510	37,618	29,533	27,783
Ohio River, Pittsburgh to mouth	4,499	4,499	6,388	7,644	10,080	11,138
Cumberland River, Tenn. and Ky.	29,549	33,868	48,598	71,461	79,478	85,306
Tennessee River, Tenn., Ala., and Ky.	852	814	1,647	2,878	3,815	3,130
FEDERAL CANALS AND CONNECTING CHANNELS	2,207	2,163	3,051	9,975	12,441	13,115
Cape Cod Canal, Mass.	7,901	14,084	13,625	13,388	12,135	10,927
Inland Waterway from Delaware River to Chesapeake Bay, Del. and Md.	3,795	3,690	7,298	9,151	8,899	9,255
Lake Charles Deep Water Channel, La.	8,601	10,288	12,164	14,901	19,483	21,026
Gulf Intracoastal Waterway, Apalachicola Bay, Fla., to the Mexican border	11,643	23,045	31,520	41,379	54,948	60,424
Sabine-Neches Waterway, Tex.	38,433	26,318	48,385	56,234	68,693	68,509
Port Aransas (Aransas Pass) Corpus Christi Waterway, Tex.	14,180	13,074	21,122	24,330	24,840	26,188
Detroit River, Mich.	18,294	127,045	127,292	132,507	111,165	100,039
St. Marys Falls Canal, Mich. and Ontario, Canada	89,360	112,983	106,140	114,649	91,420	79,588
Grays Reef Passage, Mich.	5,962	4,905	6,045	5,399	5,239	6,252
STATE CANALS						
New York State Barge Canal	4,768	2,969	4,616	4,616	3,415	3,230
Innerharbor Navigation Canal, La.	2,687	1,430	2,338	3,834	6,004	5,889

¹ Excludes waste material shipped from Hudson River, N.Y., and disposed of at sea or elsewhere, as follows: 1955, 43,325 tons; 1962, 3,201 tons.

² Reported as "Cape Fear River at and below Wilmington, N.C."

Source of tables 837 and 838: Dept. of the Army, Corps of Engineers; through 1950, *Annual Report of the Chief of Engineers*, Part 2; thereafter, *Waterborne Commerce of the United States*.

Panama Canal

599

No. 839. COMMERCIAL TRAFFIC THROUGH THE PANAMA CANAL, 1940 TO 1963, AND BY NATIONALITY OF VESSEL, 1963

[For years ending June 30. Comprises oceangoing tolls-paying vessels and foreign naval vessels of 300 net tons and over (Panama Canal measurement) for vessels rated on net tonnage, or 500 tons displacement and over for vessels rated on displacement tonnage. See also *Historical Statistics, Colonial Times to 1957*, series Q 235-237]

YEAR	Number of transits	Net tonnage ¹ (1,000)	Tolls (\$1,000)	Tons of cargo (1,000 long tons)	NATIONALITY OF VESSEL, 1963	Number of transits	Net tonnage ¹ (1,000)	Tolls (\$1,000)	Tons of cargo (1,000 long tons)
1940	5,370	24,144	21,145	27,299	Belgium.....	47	234	189	121
1941	4,727	20,643	18,153	24,951	Chile.....	124	723	649	767
1942	2,688	11,010	9,752	13,607	China (Taiwan).....	83	500	448	570
1943	1,822	8,234	7,357	10,600	Columbia.....	236	951	854	360
1944	1,562	6,073	5,456	7,003	Denmark.....	308	1,824	1,596	1,543
1945	1,939	8,381	7,244	8,604	Ecuador.....	55	173	159	40
1946	3,747	17,517	14,774	14,978	France.....	118	746	667	719
1947	4,260	20,233	17,597	21,671	Germany.....	1,095	4,677	4,058	3,536
1948	4,678	22,902	19,957	24,118	Great Britain.....	1,309	8,909	7,819	8,052
1949	4,709	23,473	20,541	25,305	Greece.....	603	4,364	3,701	5,753
1950	5,448	28,013	24,430	28,872	Honduras.....	219	366	300	150
1951	5,593	27,180	23,906	30,073	Israel.....	85	434	366	198
1952	6,524	30,674	26,923	33,611	Italy.....	168	1,139	1,010	858
1953	7,410	36,679	31,918	36,095	Japan.....	846	5,025	4,506	4,849
1954	7,784	38,028	33,248	39,095	Liberia.....	833	5,145	4,381	7,115
1955	7,997	38,568	33,849	40,646	Netherlands.....	692	3,306	2,896	2,948
1956	8,209	41,203	36,154	45,119	Norway.....	1,441	9,997	8,628	9,957
1957	8,579	43,628	38,444	49,702	Panama.....	464	1,697	1,438	1,907
1958	9,187	47,924	41,708	48,125	Peru.....	76	272	240	356
1959	9,718	52,154	45,529	51,153	Philippines.....	67	450	404	226
1960	10,705	58,302	50,930	58,258	Sweden.....	364	2,343	2,044	2,124
1961	10,866	61,826	54,128	63,670	United States.....	1,593	10,292	9,142	9,182
1962	11,149	65,379	57,200	67,625	All other.....	191	871	773	916
1963	11,017	64,438	56,368	62,247					

¹ Panama Canal net.

Source: Panama Canal Company; *Annual Report*.

No. 840. ORIGIN AND DESTINATION OF CARGO THROUGH PANAMA CANAL: 1963

[In thousands of long tons, except percent. For year ending June 30]

ORIGIN	DESTINATION							
	Pacific-bound		North America		South America			
	Total	Percent	Total	U.S. ¹	Total	Chile		
Atlantic coast.....	33,086	100.0	9,539	6,810	4,842	2,420	2,380	16,275
Percent.....			29.0	20.6	14.6	7.3	7.2	49.2
North America.....	23,142	70.0	4,481	2,948	2,445	1,499	1,320	14,897
United States.....	17,571	53.1	1,873	1,654	1,398	702	771	13,529
Canada.....	712	2.2	151	121	44	15	193	324
West Indies.....	4,455	13.5	2,171	1,017	997	778	272	1,015
South America.....	6,328	19.1	3,645	2,901	1,227	505	234	1,222
Europe.....	3,363	10.2	1,292	798	1,128	407	826	116
Middle East.....	13		6	6	9			7
Africa.....	240	0.7	165	157	42	9		33

ORIGIN	DESTINATION							
	Atlantic-bound		North America		South America			
	Total	Percent	Total	U.S. ¹	Europe	Middle East		
Pacific coast.....	29,161	100.0	15,803	14,362	641	12,266	44	407
Percent.....			100.0	54.2	49.3	2.2	42.1	1.4
North America.....	11,230	38.5	5,260	4,709	345	5,202	35	389
United States ¹	6,231	21.4	3,577	3,256	127	2,434	20	73
Canada.....	4,066	13.0	1,154	1,003	191	2,399	15	307
South America.....	11,879	40.7	6,012	5,669	37	5,803	9	18
Oceania.....	2,226	7.6	999	729	22	1,206		
Asia.....	3,825	13.1	3,532	3,255	237	55		

¹ Includes Hawaii.

Source: Panama Canal Company; *Annual Report*.

Transportation—Air and Water

No. 841. VESSELS ENTERED AND CLEARED IN FOREIGN TRADE—NET REGISTERED TONNAGE, CUSTOMS DISTRICTS: 1955 TO 1963

In thousands of net tons. Excludes domestic trade]

CUSTOMS DISTRICT AND TONNAGE	1955	1957	1958	1959	1960	1961	1962	1963
ENTERED								
<i>North Atlantic Coast</i>								
With cargo	71,159	87,616	79,266	76,304	75,829	75,032	80,068	83,504
With cargo	57,844	64,865	65,628	68,870	66,589	64,879	69,143	70,101
<i>South Atlantic Coast</i>								
With cargo	6,000	6,987	7,360	8,586	8,927	8,307	9,000	9,953
With cargo	5,292	5,992	6,688	7,845	7,508	7,303	8,099	8,465
<i>Gulf Coast</i>								
With cargo	17,434	24,022	22,233	22,532	27,022	30,237	32,224	32,459
With cargo	11,795	13,777	15,409	15,822	15,616	15,661	16,836	16,399
<i>South Pacific Coast</i>								
With cargo	9,582	13,949	13,391	12,277	17,148	18,200	18,654	17,736
With cargo	7,547	11,492	11,415	13,477	15,007	15,332	16,675	15,369
<i>North Pacific Coast</i>								
With cargo	6,385	8,453	8,235	9,154	10,133	9,851	9,861	11,570
With cargo	4,305	5,061	6,185	7,089	7,551	6,981	7,152	7,729
<i>Great Lakes</i>								
With cargo	14,597	16,781	12,806	10,369	16,937	17,593	19,728	21,577
With cargo	4,631	5,460	4,590	3,133	7,771	7,826	9,761	10,748
<i>Puerto Rico, Alaska, Hawaii, and V.I.</i>								
With cargo	3,247	5,148	5,817	5,992	6,869	7,326	8,739	9,842
With cargo	2,678	4,301	4,976	5,267	5,968	6,369	7,340	7,991
Cleared								
<i>North Atlantic Coast</i>								
With cargo	71,240	85,947	79,032	76,923	80,842	79,127	88,496	86,874
With cargo	38,903	49,515	39,982	33,216	33,510	35,964	37,888	40,296
<i>South Atlantic Coast</i>								
With cargo	5,846	7,197	7,135	7,415	8,612	8,759	9,275	9,726
With cargo	3,635	4,485	4,444	4,582	5,121	5,362	5,227	5,249
<i>Gulf Coast</i>								
With cargo	17,289	24,402	22,240	24,109	25,218	27,235	29,823	30,200
With cargo	13,320	19,950	16,287	17,963	18,826	20,385	22,825	23,501
<i>South Pacific Coast</i>								
With cargo	11,172	14,817	14,226	15,502	18,007	18,616	18,843	18,263
With cargo	10,598	11,504	11,381	12,765	14,602	14,485	14,127	14,540
<i>North Pacific Coast</i>								
With cargo	5,060	7,710	7,123	8,367	9,444	9,473	9,180	11,158
With cargo	4,130	6,157	5,189	5,946	6,923	7,415	7,068	8,639
<i>Great Lakes</i>								
With cargo	14,561	16,624	12,714	16,244	16,937	17,583	19,623	21,434
With cargo	11,831	13,654	10,366	11,882	13,106	13,791	15,020	16,730
<i>Puerto Rico, Alaska, Hawaii, and V.I.</i>								
With cargo	4,200	5,882	6,346	6,946	7,684	8,085	8,714	9,882
With cargo	3,077	3,768	3,741	3,736	3,491	3,668	3,920	4,591

No. 842. VESSELS ENTERED AND CLEARED IN FOREIGN TRADE—NET REGISTERED TONNAGE, BY FLAG OF CARRIER VESSEL: 1941 TO 1963

[In thousands of net tons, except number of vessels and percents. Includes Alaska, Hawaii, and Puerto Rico, and Virgin Islands. Excludes domestic trade. See also *Historical Statistics, Colonial Times to 1957*, series Q 192-203.]

YEARLY AVERAGE OR YEAR	ALL PORTS					SEAPORTS ¹				
	Num- ber of ves- sels	All vessels				All vessels				With cargo
		Total ton- nage	U.S.	For- eign	Percent U.S.	Total ton- nage	U.S.	For- eign	Total ton- nage	
ENTERED										
1941-1945	38,997	67,994	34,658	33,336	51.0	52,620	30,059	22,560	28,995	16,877
1946-1950	48,813	87,462	46,205	41,257	52.8	75,094	42,168	32,926	50,288	26,318
1951-1955	48,082	114,090	39,459	75,531	34.3	100,657	35,345	65,313	78,407	26,759
1956-1960	51,874	155,368	31,118	124,251	20.0	139,375	26,938	112,436	110,023	21,884
1965	48,415	128,405	34,321	94,084	26.7	113,807	30,407	83,400	89,552	25,331
1966	48,455	149,097	26,842	122,255	18.0	136,291	23,642	112,648	110,280	19,806
1959	51,237	154,213	26,417	127,796	17.1	137,845	21,897	115,947	118,370	18,510
1960	51,375	162,765	30,189	132,575	18.5	145,828	26,119	119,119	118,539	19,955
1961	47,828	166,548	31,144	135,404	18.7	148,955	26,266	120,688	116,525	18,779
1962	49,515	178,334	33,774	144,560	18.9	158,606	29,963	128,644	125,297	19,978
1963	48,654	186,700	33,300	158,400	17.8	165,124	28,677	138,447	126,054	18,928
Cleared										
1941-1945	38,195	71,792	37,283	34,509	51.9	50,304	32,585	23,718	45,147	26,377
1946-1950	45,135	87,190	44,942	42,244	51.5	74,889	40,933	33,953	54,584	29,510
1951-1955	45,324	115,447	39,533	75,914	34.2	101,213	35,531	65,682	68,396	25,407
1956-1960	49,079	156,376	31,157	125,219	19.9	140,498	27,018	113,478	85,273	19,791
1955	46,642	129,308	34,407	94,961	26.6	114,806	30,615	84,192	73,663	20,763
1958	46,115	148,818	26,449	122,366	18.0	136,102	23,324	112,778	81,024	18,711
1959	49,608	155,505	26,622	128,883	17.1	136,262	22,492	117,221	80,208	18,269
1960	49,809	166,715	31,280	135,434	18.8	149,778	27,649	122,127	84,470	18,653
1961	46,354	168,878	31,941	136,936	18.9	151,295	29,062	122,283	87,273	18,982
1962	47,837	178,953	34,165	144,788	19.1	150,330	30,337	128,992	91,036	19,648
1963	46,882	187,559	34,106	153,433	18.2	166,103	30,440	135,663	96,822	20,833

¹ Comprises all ports except northern border ports.Source of tables 841 and 842: Dept. of Commerce, Bureau of the Census; *Foreign Commerce and Navigation of the United States*, and current summary reports, FT 975, *Vessel Entrances and Clearances*.

Employees—Wage Scale

601

No. 843. EMPLOYEES IN GOVERNMENT AND PRIVATE SHIPYARDS: 1940 TO 1963

In thousands. Annual average employment in establishments primarily engaged in building and repairing all types of ships, barges, canal boats, and lighters of 5 gross tons and over, whether propelled by sail or motor power or towed by other craft]

YEAR	Total	Private yards ¹	Navy yards ²	YEAR	Total	Private yards ¹	Navy yards ²
1940	180	103	78	1956	212	110	102
1945	1,034	742	292	1957	225	127	98
1950	146	72	74	1958	218	123	95
1951	223	102	121	1959	211	118	93
1952	268	134	133	1960	204	112	92
1953	255	131	124	1961	211	116	95
1954	218	108	110	1962	210	115	94
1955	208	101	107	1963	208	118	90

¹ Includes all full- and part-time employees who worked during or received pay for any part of the pay period ending nearest the 15th of the month. Data have been adjusted to March 1962 benchmark levels indicated by data from Government social insurance programs.

² Includes Curtis Bay Coast Guard yard (Md.).

Source: Dept. of Labor, Bureau of Labor Statistics. Current data published monthly in *Employment and Earnings*.

No. 844. EMPLOYMENT ON U.S. FLAG MERCHANT VESSELS: 1935 TO 1963

[As of June 30, except as indicated. Estimates of personnel employed on U. S. merchant ships, 1,000 gross tons and over. Excludes vessels on inland waterways, Great Lakes, and those owned by, or operated for, the United States Army and Navy, and special types such as cable ships, tugs, etc.]

DATE	Employment	DATE	Employment	DATE	Employment
1935	56,150	1950	61,550	1961	1 ¹ 30,930
1940	49,810	1951	84,300	1962—Mar. 31	2 ² 44,553
1941	51,280	1952	79,650	June 30	47,346
1942	47,410	1953	72,750	Sept. 30	46,308
1943—June 20	75,000	1954	63,850	Dec. 31	3 ³ 42,541
1944—June 20	125,290	1955	57,507		
1945—June 20	158,860	1956	57,192	1963—Mar. 31	47,771
1946—June 20	120,050	1957	61,059	June 30	47,906
1947—Dec. 20	110,820	1958	51,515	Sept. 30	46,733
1948	80,250	1959	50,223	Dec. 31	47,236
1949	71,970	1960	49,153		

¹ Employment affected by Maritime strike, Atlantic, Gulf, and Pacific Coast ports.

² Employment affected by unlicensed seamen's strike, Pacific Coast ports.

³ Employment affected by Longshoremen's strike, Atlantic and Gulf Coast ports.

Source: Dept. of Commerce, Maritime Administration; unpublished data.

No. 845. BASIC WAGE SCALE FOR ABLE-BODIED SEAMEN: 1935 TO 1964

[Represents basic wage, over and above subsistence (board and room), paid to seamen having qualifying experience and employed on U.S. flag merchant vessels. Excludes overtime and fringe pay benefits]

MONTH ESTABLISHED	Monthly wage rate	AREA AND MONTH ESTABLISHED	Monthly wage rate	AREA AND MONTH ESTABLISHED	Monthly wage rate
In effect, Jan. 1, 1935	\$55.00	EAST COAST ¹		WEST COAST ¹	
1940—January	72.50		\$314.41	1953—June	\$314.41
1941—February	90.00	1953—June	333.27	1954—October	302.00
1942—January	100.00	1956—June	333.27	1955—November	423.00
1945—October	145.00	1957—June	333.27		
1946—April	162.50				
1947—June	172.50	1960—January	369.17	1956—October	453.00
1947—February	182.85	1961—June	383.94	1957—October	478.00
October	197.50	1962—June	392.58	1960—October	511.50
1948—March	210.00	In effect, Jan. 1, 1964	392.58	1961—October	521.50
December	226.00			In effect, Jan. 1, 1964	521.50
1950—September	248.50				
1951—October	288.00				
1952—April	302.40				

¹ Seamen on both coasts receive extra pay for Saturdays and Sundays at sea. Beginning November 1955, West Coast incorporated this extra pay into base wages but East Coast did not.

Source: Dept. of Commerce, Maritime Administration; unpublished data.

Transportation—Air and Water

No. 846. UNITED STATES FLAG MERCHANT VESSELS, STEAM AND MOTOR: 1940 TO 1963

[Dead-weight tonnage in thousands. As of June 30, except as indicated. Covers seagoing vessels of 1,000 gross tons and over engaged in foreign and domestic trade, and inactive vessels. Excludes special types and vessels employed on Great Lakes.]

YEAR AND TYPE OF VESSEL	ALL VESSELS		ACTIVE VESSELS												SPECIAL SERVICE			
	Num- ber	Tons	Total		Foreign trade		Domestic trade		Intercoastal		Noncontiguous		Num- ber	Tons	Num- ber	Tons		
			Num- ber	Tons	Num- ber	Tons	Total	Coastwise	Num- ber	Tons	Num- ber	Tons						
1940—Combination	1,300	11,019	1,118	9,543	425	3,749	693	5,893	122	1,189	71	522	1,181	1,367	1	10		
Cargo	140	873	112	696	66	514	446	350	129	8	9	45	28	176	-----	-----		
Tanker	790	6,021	641	4,882	261	2,443	350	2,438	188	109	1,033	53	417	148	1,129	1	10	
1946 (Sept. 30)—Combination	3,852	50,263	2,332	25,399	1,890	20,582	442	4,807	297	3,460	54	563	757	533	4,998	1,557	16,138	
Cargo	3,829	36,765	1,825	18,833	18	15	127	10	35	33	361	10	38	33	213	51	3,728	
Tanker	906	12,785	474	7,122	268	4,264	206	2,838	196	101	723	1	9	450	1,159	11,069	247	
1950—Combination	3,408	36,526	1,145	13,828	711	8,353	434	5,474	279	3,716	87	1,131	68	626	86	845	2,177	21,853
Cargo	2,846	639	51	417	45	339	6	28	-----	-----	6	53	28	4	27	28	195	-----
Tanker	473	6,939	282	927	682	7,075	505	5,387	177	7,078	66	550	50	50	42	384	2,122	21,468
1955—Combination	3,235	35,017	1,026	12,572	601	6,932	425	5,830	271	3,999	75	996	79	885	89	1,099	1,983	19,687
Cargo	2,560	26,539	40	371	39	1	10	-----	-----	-----	1	10	14	68	185	1,166	110	82
Tanker	426	6,790	334	7,033	402	5,333	160	1,630	43	385	52	591	65	674	28	286	1,760	1,149
1960—Combination	2,960	32,821	930	12,467	558	6,511	372	5,926	237	4,284	50	717	85	925	99	1,400	1,884	18,279
Cargo	2,296	2,014	36	319	34	305	2	14	-----	-----	2	14	31	265	35	376	1,536	1,056
Tanker	425	23,015	627	6,854	479	5,265	145	1,559	35	375	30	442	74	73	198	60	933	1,062
1963—Combination	2,691	30,763	886	12,823	557	7,344	299	5,479	207	4,349	25	369	67	761	1,89	1,269	1,656	15,671
Cargo	2,013	21,924	31	275	30	271	1	4	-----	-----	1	4	3	30	45	45	1,321	1,806
Tanker	385	7,754	240	7,136	512	5,797	163	1,157	26	290	19	220	58	647	110	43	775	81

¹All inactive vessels.²Includes ships originally constructed as cargo ships but converted to transports, hospital ships, etc., previously included in cargo classification as follows: 1955, 151 ships;

Source: Dept. of Commerce, Maritime Administration; unpublised data.

of 1,124,000 tons; 1960, 237 ships of 1,427,630 tons; 1963, 220 ships of 1,306,700 tons.

Merchant Vessels

603

No. 847. MERCHANT VESSELS COMPLETED BY U.S. SHIPYARDS: 1930 TO 1963

[Represents self-propelled steel vessels of 2,000 gross tons and over. Excludes Alaska and Hawaii]

YEAR	ALL MERCHANT VESSELS		PASSENGER-CARGO/TRANSPORT			CARGO			TANKER		
	Number	Gross tons	Number	Gross tons	Dead-weight tons	Number	Gross tons	Dead-weight tons	Number	Gross tons	Dead-weight tons
1930-----	18	163,500	5	50,311	39,260	2	15,824	24,000	11	97,365	161,219
1935-----	2	19,022							2	19,022	29,760
1940-----	53	444,727	6	68,943	61,222	31	227,275	334,660	16	148,509	238,352
1941-----	95	749,108	6	58,107	56,515	61	423,022	597,943	28	267,979	434,039
1942-----	724	5,392,848	11	101,847	81,200	652	4,678,880	6,842,689	61	612,121	982,381
1943-----	1,661	12,485,629	20	219,760	180,047	1,410	10,103,245	14,921,082	231	2,162,624	3,420,405
1944-----	1,463	11,403,163	48	461,291	330,311	1,175	8,455,475	11,857,797	240	2,486,397	3,954,957
1945-----	1,041	7,614,898	46	509,163	311,046	807	5,336,152	7,206,201	188	1,769,583	2,787,397
1950-----	26	404,617				3	26,854	43,500	23	377,763	608,593
1955-----	9	119,104				7	84,110	95,280	2	34,994	55,414
1958-----	30	571,886	4	60,700	34,707	5	48,211	66,681	21	462,975	759,496
1959-----	30	713,562	1	5,315	1,200	3	40,434	72,834	26	667,813	1,095,388
1960-----	26	409,736				15	133,592	168,309	11	276,144	455,672
1961-----	25	368,037				18	100,019	224,230	7	178,918	298,066
1962-----	27	391,608	1	13,559	9,830	23	264,627	303,487	3	113,422	185,972
1963-----	35	417,906	6	50,700	31,308	23	260,046	288,733	6	117,220	199,640

Source: American Bureau of Shipping, New York, N.Y. Annually in *The Bulletin*.

No. 848. SHIPBUILDING IN PRIVATE SHIPYARDS—SUMMARY: 1950 TO 1963

[Tons in thousands: Gross tons for commercial vessels, light displacement tons for naval vessels. Includes Alaska and Hawaii. Covers steel vessels of 1,000 tons or over]

ITEM	1950		1960		1961		1962		1963	
	Number	Tons								
COMMERCIAL VESSELS										
Under construction, Jan. 1 ¹ -----	39	636	60	979	57	789	66	859	54	648
Contracted for-----	16	181	23	270	34	2438	15	174	25	291
Launched-----	26	422	31	471	20	320	37	429	18	261
Delivered-----	26	415	25	404	25	369	27	385	34	422
Under construction, Dec. 31-----	29	401	53	844	66	2859	54	648	45	517
NAVAL VESSELS										
Under construction, Jan. 1 ¹ -----	11	42	52	334	59	67	362	71		
Contracted for-----			19	115	24	132	19	99	29	148
Launched-----			16	170	13	69	18	79	23	125
Delivered-----			12	39	16	173	15	76	17	81
Under construction, Dec. 31-----	11	42	59	410	67	362	71	385	83	450

¹ Excludes vessels cancelled during year.

² Tonnages revised.

Source: Shipbuilders Council of America, Washington, D.C.; *Annual Report* and unpublished data.

No. 849. VESSELS REPAIRED OR CONVERTED IN PRINCIPAL PRIVATE SHIPBUILDING AND SHIP REPAIR YARDS: 1950 TO 1963

[Includes Alaska and Hawaii]

YEAR	TOTAL		VESSELS UNDER 1,000 GROSS TONS		VESSELS OVER 1,000 GROSS TONS	
	Yards reporting ¹	Vessels	Yards reporting	Vessels	Yards reporting	Vessels
1950-----	118	33,287	111	17,993	80	15,294
1955-----	144	35,413	130	21,122	89	14,291
1956-----	165	45,555	144	29,401	93	16,154
1957-----	152	40,827	139	26,106	82	14,721
1958-----	154	42,800	134	28,831	88	14,478
1959-----	149	37,501	130	24,837	87	12,664
1960-----	150	37,774	132	24,991	93	12,783
1961-----	122	36,816	106	26,027	73	10,789
1962-----	151	42,686	137	29,912	95	12,774
1963-----	119	29,965	105	19,714	82	10,251

¹ Not additive.

Source: Shipbuilders Council of America, Washington, D.C.; *Annual Report* and unpublished data.

Transportation—Air and Water

No. 850. U.S. MERCHANT MARINE—SUMMARY: 1930 TO 1963

[As of June 30 for 1930 to 1940; January 1, thereafter. Includes Alaska, Hawaii, Puerto Rico, Guam, and Virgin Islands. Covers documented vessels of 5 net tons or more. See also *Historical Statistics, Colonial Times to 1967*, series Q 153-174]

YEAR	NUMBER OF VESSELS			GROSS TONNAGE OF VESSELS (1,000)							
	Total	Steam and motor	All other	Total	Major class			Material of which built		Type of trade in which engaged ³	
					Steam and motor	Sail- ing	Un- rigged ¹	Wood	Other ²	For- eign trade	Coast- wise and internal
1930-----	25,214	18,211	7,003	16,068	13,757	757	1,554	2,554	13,514	6,296	9,723
1935-----	24,919	18,495	6,424	14,654	12,535	441	1,677	2,185	12,460	4,560	10,049
1940-----	27,212	19,504	7,708	14,018	11,353	200	2,466	2,329	11,393	3,638	10,352
1945-----	29,797	22,772	7,025	32,813	30,247	115	2,452	1,915	30,898	26,043	6,766
1950-----	36,083	28,793	7,290	31,215	28,327	82	2,806	1,962	29,263	19,154	12,048
1955-----	33,242	31,882	7,360	29,958	26,792	40	3,125	1,622	28,336	18,143	11,812
1957-----	40,191	32,423	7,768	29,421	25,785	24	3,612	1,486	27,935	17,265	12,154
1958-----	41,276	32,988	8,288	28,586	24,599	23	3,965	1,469	27,118	16,206	12,376
1959-----	42,409	33,506	8,903	28,895	24,333	23	4,539	1,425	27,470	16,600	13,284
1960-----	48,088	33,640	9,448	28,581	23,553	23	5,005	1,307	27,184	14,737	13,833
1961-----	43,367	33,796	9,571	26,408	21,175	18	5,210	1,375	25,028	13,126	13,260
1962-----	43,566	33,852	9,714	25,456	20,076	18	5,362	1,349	24,107	12,303	12,775
1963-----	44,077	34,004	10,073	25,691	20,079	18	5,595	1,314	24,377	12,280	13,089

AREA OF LOCATION	NUMBER OF VESSELS					GROSS TONNAGE OF VESSELS (1,000)				
	1950	1955	1960	1962	1963	1950	1955	1960	1962	1963
	Total	36,083	39,242	43,088	43,566	44,077	31,215	29,958	28,581	25,456
Atlantic and Gulf-----	21,623	23,355	24,963	24,725	24,642	20,420	20,402	18,926	16,477	16,547
Pacific-----	10,066	10,687	10,828	10,855	10,870	8,446	7,004	5,782	4,533	4,537
Northern lakes-----	2,026	2,005	1,950	1,971	1,962	1,628	1,590	1,728	2,056	1,932
Western rivers-----	2,368	3,195	5,347	6,015	6,603	721	962	2,145	2,389	2,670

¹ Vessels having no propelling power of their own.

² Comprises iron, steel, composite, concrete, and aluminum. Beginning 1961, includes plastic (fiberglass).

³ Excludes vessels engaged in whale, cod, and mackerel fisheries.

Source: Treasury Dept., Bureau of Customs; annual report, *Merchant Marine Statistics*.

No. 851. U.S. MERCHANT MARINE—VESSELS, BY YEAR BUILT: 1963

[As of January 1. Includes Alaska, Hawaii, Puerto Rico, Guam, and Virgin Islands. Covers documented vessels of 5 net tons or more]

PERIOD BUILT	Number	Gross tons	YEAR BUILT	Number	Gross tons	YEAR BUILT	Number	Gross tons
Total-----	44,077	25,690,824	1941-----	869	412,804	1952-----	1,058	442,698
Unknown-----	593	40,469	1942-----	1,255	1,533,554	1953-----	1,277	638,502
1849-1900-----	566	132,224	1943-----	1,779	3,190,746	1954-----	1,256	586,160
1901-1905-----	443	251,822	1944-----	2,063	3,917,718	1955-----	1,263	432,072
1906-1910-----	722	697,106	1945-----	1,818	4,001,877	1956-----	1,574	476,850
1911-1915-----	1,070	259,361	1946-----	1,452	610,177	1957-----	1,707	658,141
1916-1920-----	1,385	348,313	1947-----	1,364	286,286	1958-----	1,502	837,070
1921-1925-----	1,598	302,012	1948-----	1,241	242,978	1959-----	1,365	889,083
1926-1930-----	2,978	579,801	1949-----	1,094	204,819	1960-----	1,110	676,835
1931-1935-----	1,803	222,043	1950-----	986	215,733	1961-----	995	671,727
1936-1940-----	3,552	735,569	1951-----	1,074	333,343	1962-----	1,175	821,481

Source: Treasury Dept., Bureau of Customs; annual report, *Merchant Marine Statistics*.

Merchant Marine

605

No. 852. U.S. MERCHANT MARINE—NUMBER AND GROSS TONNAGE OF VESSELS, BY TONNAGE GROUP: 1963

[As of January 1. Includes Alaska, Hawaii, Puerto Rico, Guam, and Virgin Islands. Covers documented vessels of 5 net tons or more]

TONNAGE GROUP	ALL VESSELS		STEAM		MOTOR		SAILING		UNRIGGED ¹	
	Number	Gross tons (1,000)	Number	Gross tons (1,000)	Number	Gross tons (1,000)	Number	Gross tons (1,000)	Number	Gross tons (1,000)
Total.....	44,077	25,691	2,348	17,987	31,656	2,092	160	18	9,913	5,595
5 to 49 tons.....	25,926	468	18	(2)	25,118	447	140	2	650	19
50 to 99 tons.....	4,028	280	30	3	3,554	244	5	(2)	439	33
100 to 499 tons.....	6,894	1,941	164	40	2,512	512	6	2	4,212	1,388
500 to 999 tons.....	3,989	2,886	50	44	223	147	5	4	3,711	2,691
1,000 to 4,499 tons.....	1,253	2,355	140	459	215	464	4	9	894	1,422
5,000 to 9,999 tons.....	1,546	11,566	1,511	11,309	28	205	-----	-----	7	42
10,000 to 19,999 tons.....	397	5,080	391	5,007	6	73	-----	-----	-----	-----
20,000 tons and over.....	44	1,124	44	1,124	-----	-----	-----	-----	-----	-----

¹ Vessels having no propelling power of their own.

² Less than 500 gross tons.

Source: Treasury Dept., Bureau of Customs; annual report, *Merchant Marine Statistics*.

No. 853. U.S. MERCHANT MARINE—GROSS TONNAGE OF VESSELS BUILT AND REMOVED: 1940 TO 1962

[Includes Alaska, Hawaii, Puerto Rico, Guam, and Virgin Islands. Covers documented vessels of 5 net tons or more. Vessels may be added to merchant marine by way of redocumentation. However, figures are available only for vessels documented. See also *Historical Statistics, Colonial Times to 1957*, series Q 178-182]

YEAR	VESSELS BUILT AND DOCUMENTED			GROSS TONNAGE OF VESSELS REMOVED (1,000)					
	Number	Gross tonnage (1,000)		Total	Lost and abandoned	Sold to aliens ³	Out of documentation	All other	
		Total ¹	Steam and motor	Unrigged ²					
1940.....	705	447	386	61	1,697	274	1,114	62	246
1945.....	1,744	6,314	6,259	55	901	138	75	42	646
1950.....	861	194	103	91	1,238	163	488	411	176
1955.....	1,116	400	117	283	866	63	418	208	176
1956.....	1,385	446	152	293	890	60	274	435	122
1957.....	1,582	555	249	336	1,625	33	579	728	285
1958.....	1,390	837	406	431	961	35	87	694	144
1959.....	1,180	792	386	406	1,448	58	50	1,264	75
1960.....	949	629	352	277	3,065	55	249	2,585	175
1961.....	877	620	389	231	1,966	54	456	1,260	195
1962.....	4,1,175	821	420	402	947	45	261	322	819

¹ Includes small amount of tonnage for sailing vessels for certain years.

² Vessels having no propelling power of their own.

³ Beginning 1955, sold or transferred to aliens.

* Includes 1 nuclear steam screw of 13,559 gross tons.

Source: Treasury Dept., Bureau of Customs; annual report, *Merchant Marine Statistics*.

Transportation—Air and Water

No. 854. MERCHANT VESSELS LAUNCHED AND OWNED—WORLD AND UNITED STATES:
1935 TO 1963

[Vessels of 100 gross tons and over. Includes Alaska and Hawaii. Beginning 1945, excludes sailing ships, non-propelled craft, and all ships built of wood]

YEAR	WORLD				UNITED STATES			
	Launched		Owned		Launched		Owned	
	Number	Gross tons (1,000)	Number	Gross tons (1,000)	Number	Gross tons (1,000)	Number	Gross tons (1,000)
1935	1,040	1,259	30,979	64,886	117	1,244	3,585	12,773
1940	495	1,754	(2)	(2)	167	579	(2)	(2)
1945	1,311	7,189	(2)	(2)	880	5,968	(2)	(2)
1950	990	3,489	27,922	83,996	51	437	4,531	27,404
1955	1,437	5,315	29,967	100,069	26	73	4,225	26,343
1958	1,936	9,270	32,857	117,578	64	732	4,054	25,526
1959	1,808	8,746	33,024	124,494	47	597	3,064	25,227
1960	2,020	8,356	34,056	129,339	60	485	3,845	24,781
1961	1,930	7,940	35,465	135,477	56	343	3,728	24,184
1962	1,901	8,375	36,364	139,549	90	449	3,642	23,220
1963	2,001	8,539	37,310	145,438	78	294	3,506	23,082

¹ 1935-1939 average.² Not recorded.

Source: Lloyd's Register of Shipping, London; unpublished data.

No. 855. MERCHANT FLEETS OF THE WORLD, BY TYPE OF VESSEL AND COUNTRY OF REGISTRATION: 1962

[Vessels of 1,000 gross tons and over. As of December 31. Specified countries have 100 or more ships]

COUNTRY OF REGISTRY	TOTAL		COMBINATION PASSENGER AND CARGO	FREIGHTERS		BULK CARRIERS ¹	TANKERS	
	Number	Average age (years)		Number	Average age (years)		Number	Average age (years)
	1,213	18.9	11,648	14.7	1,592	9.7	3,408	9.8
World total	17,861	13.6						
United States	2,733	17.4	295	18.1	1,971	17.9	71	17.5
Privately owned	985	15.4	34	15.0	567	15.9	70	17.5
Government-owned	1,748	18.6	261	18.5	1,404	18.6	1	19.0
Foreign	15,128	12.9	918	19.2	9,677	14.0	1,521	9.3
Argentina	169	20.0	21	19.6	73	19.6	3	33.0
Australia	105	12.3	7	13.7	57	12.8	40	11.6
Brazil	226	21.7	27	39.0	139	23.6	17	13.8
British Colonies	206	18.5	25	19.5	154	18.4	13	18.8
China (mainland)	165	22.7	21	23.2	109	25.3	18	11.7
Denmark	365	8.8	27	20.4	269	8.4	10	5.9
Finland	237	18.1	6	34.3	185	17.8	20	25.5
France	634	10.2	56	14.2	358	10.6	59	8.0
Germany (West)	883	9.0	22	14.9	750	8.9	63	8.0
Greece	779	15.2	35	25.8	560	15.8	83	12.8
India	170	11.7	12	16.8	153	11.4	1	9.0
Italy	632	17.0	73	18.5	348	20.1	68	10.9
Japan	1,224	8.4	26	14.6	882	9.1	121	5.4
Lebanon	190	24.7			175	24.0	15	32.3
Liberia	806	11.8	6	21.5	330	16.5	123	8.3
Netherlands	555	9.3	59	16.0	368	9.1	25	4.8
Norway	1,396	8.9	25	13.2	705	10.5	170	4.8
Panama	485	20.3	19	29.2	292	24.1	29	19.3
Poland	155	13.3	1	26.0	124	13.5	24	13.0
Spain	344	28.8	43	23.3	224	34.1	18	27.9
Sweden	558	11.5	11	28.8	378	12.8	69	7.9
Turkey	132	24.6	27	24.1	92	26.5	1	17.0
United Kingdom	2,290	9.9	152	15.0	1,326	10.2	281	8.5
U.S.S.R.	1,002	15.5	71	24.3	587	19.5	183	6.0
Yugoslavia	161	14.0	10	18.0	133	14.2	7	10.1
All others ²	1,259	13.9	136	16.4	901	13.5	60	15.4

¹ Includes ore carriers and ore/oil carriers.² Includes the following countries with less than 100 merchant type ships (1,000 gross tons and over) under their registry: Albania, Belgium, Bulgaria, Burma, Canada, Chile, China (Taiwan), Colombia, Costa Rica, Cuba, Czechoslovakia, Dominican Republic, Ecuador, Ethiopia, Germany (East), Ghana, Guatemala, Honduras, Hungary, Iceland, Indonesia, Iran, Iraq, Ireland, Israel, Ivory Coast, Jamaica, Korea, Kuwait, Libya, Malagasy, Malaya, Mexico, Monaco, Morocco, New Zealand, Nicaragua, Nigeria, Pakistan, Peru, Philippines, Portugal, Romania, Saudi Arabia, Sudan, Switzerland, Thailand, Trinidad-Tobago, Tunisia, South Africa, United Arab Republic, Uruguay, Venezuela, and Viet-Nam.Source: Dept. of Commerce, Maritime Administration; *A Statistical Analysis of the World's Merchant Fleets*, December 1962.